The Builder.

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Gains from the Forty-Third Meeting of the British Association for Science.

GREAT BRITAIN may well be congratulated on the Meeting of the British Association for the year 1873. We may recall former occasions on which the brilliancy of special addresses, or the interest of particular discoveries, has commanded the admiration of the world of science. But it would be difficult to name any year, since the origination of these scientific gatherings, in which there was manifest a more active and successful progress in so many distinct branches of investigation; or, in military phrase, a more marked victory along the whole line.

We have already given pickings from the addresses and from a few of the papers brought forward at the meeting. We now have to refer more particularly to some of those special discoveries and publications which echo, to a great extent, many an utterance of our own columns. We wish first to call attention to the fact that the studies of the anatomist, the physiologist, and the organic chemist, are closely and essentially connected with those of the engineer. The wonderful economy of nature, in such a matter as the effective application of the heat liberated by the consumption of a given weight of carbon, is immensely in advance of the results of our best steam-engines. We have thus a clear indication of the vast improvement which is conceivable in this direction. When we look at the development given to what is called the Kinetic theory of heat, and when we compare the results of definite measurements of the exertion and production of power in the organic structure with the results of human mechanisms, we may well believe that we are as yet only learning the very rudiments of the mechanical and engineering science of the future.

A striking exemplification as well of the wide range as of the minute investigation carried on in each section, with reference to the subjects brought before the Association, occurred in the proceedings of the Chemical section, on the 23rd of September. Mr. Norman Lockyer then read a paper on the physical elements of the sun, a subject of research which not only was entirely beyond the grasp of human intelligence before the invention of the spectroscope, but which ranks among those that one of the first philosophers of the present age pronounced to be absolutely unattainable by man, and which therefore it was a loss of time to pursue. From this lofty attempt to extend the boundaries of physical astronomy, the attention of the section was straightway called to the Report of the Committee on the Treatment of Sewage, re-appointed at Brighton.

The main outcome of this year's report appears to be an application for more funds, in order to prosecute further inquiries; the one other point brought forward being the ascertainment of a considerable increase in the amount of nitrogen and phosphoric acid found in the soil of the sewage-farm that was the subject of experiment. A special report on Breton's farm at Romford followed, and it was stated that not only was an enrichment of the soil in those elements which we have just mentioned ascertained to have taken place, but that the purity of the effluent water was rather increased than diminished. It was, however, also shown, that the statements of the Local Board as to the population contributing to the sewage were very incorrect, the actual number being only about 4,000, instead of between 7,000 and 8,000. The inference was stated that sewage of this town contained from 13 lb. to 14 lb. of nitrogen per head of the population per annum.

Professor Corfield recapitulated the various points on which the committee had from time to time reported as settled. Of these the first was the condemnation of any form of the permanent cesspool system. 2. The recommendation of the water-carriage system, including the two main conditions of the impermeable nature of the material to be used for sewer building, and of the careful ventilation of all sewers. 3. The committee report the inadequacy of all the processes of precipitation on which they have made experiment, including upward filtration and Weare's charcoal process. 4. They point out, as we have ourselves long since done, that the downward filtration process practised at Merthyr Tydvil, while available as a strictly sanitary measure, cannot be properly called a method of utilisation. Our own argument was economical, and drawn from a comparison of the quantity of sewage absorbed per acre with the amount of produce returned. The committee have approached the same subject analytically, and find that the affluent water contains all the nitrogen which the sewage itself contained, although it had assumed the form of nitric acid, instead of that of ammonia and organic nitrogen. 5. Precipitation or clarifying, by some means, is pointed out as desirable in all cases. On this, our readers will bear in mind, we have ourselves insisted. 6. The committee are further at one with us on the subject of agricultural subsoil drainage. They say, as we have often said, that it is essential that land should be so under-drained that any sewage applied should pass, not over, but through, the soil; and that saturation of the soil is indefensible, on either agricultural, chemical, or sanitary principles. It is of the utmost importance that this law should be kept before the eyes of all persons dealing with sanitary works, or with the disposal of sewage. The key to the recent controversy as to typhoid fever and sewage farms lies here, as we pointed out a few weeks ago. It is further urged by the committee that a special kind of culture is necessary for sewage farms; and that the feeding of cattle, and thus the production of food in the shape of meat and of milk, is the true object of this species of farming.

The Town Clerk of Bradford then read a paper, which appears to have been in every way worthy of the occasion, and of a public officer of the town which was the entertainer of the Association. The reports of the committee appointed by the Association dealt, as our readers will see, with the sanitary and the agricultural parts of the question. The paper of Mr. MacGowan called attention to the no less essential element of the political action necessary for our protection from the pestilential results of continued neglect. Mr. MacGowan gave an abstract of the course of legislative inquiry and action on the subject, and appeared as the advocate of those local authorities who are, on the one hand, laden with responsibility by the Government, and, on the other hand, refused scientific advice from the same sources, and occasionally refused by Parliament the powers which they seek to make experimental works of their own. Mr. MacGowan pointed out that the Act of 1872 contained summary provisions which were simply impossible as to execution, and that a saving clause had consequently to be introduced which tended to render the enactments inoperative. It was stated that five manufacturers of Bradford used between them no less than three million gallons of water daily, and that the question of pollution of rivers was thus one intimately connected with the commercial prosperity of towns; so that it is essential to the latter to give every facility in their power to the manufacturers. Mr. MacGowan pointed out the very limited area, compared with the surface of the country, to which it could be argued that sewage irrigation was in any way applicable; and insisted on the duty of the Government to promote amicable co-operation among the parties interested, in preference to legislating recklessly or harshly, or, he might have added, feebly and idly, "or thrusting down the throats of honest men dogmas which, after enormous expenditure and infinite discomfort, may prove to be erroneous." Nevertheless, we must not be regarded as giving any encouragement to the *laissez aller* system.

In the section on Economic Science and Statistics, Mr. E. C. T. Bartley read a paper on the Poor-law, and its effect on thrift, which was in complete harmony with views we have often found occasion to express, and which was very well received by the section. Mr. Bartley pointed out that the principle that the recipient of relief should be destitute before relief was afforded, is one that it is impossible thoroughly to carry out, and that its operation was practically to encourage the poor to keep as near the line of destitution as possible. He might have urged that if the express purpose of legislation had been to break down the spirit of independence among the poor, and to induce the tottering to fall, rather than to aid them to stand, it could not have been more effectually carried out. "Instead," the paper wisely urged, "of its being to a man's advantage to be thriftless and destitute, as is the case at present, it should be to his disadvantage." It is quite true that the last three years have witnessed a marked and happy decrease in the amount of pauperism. By a return of the Local Government Board, dated 20th of August, 1873, it appears that the number of paupers, at the end of the Midsummer quarter of the present year, was 777,725, against 833,424 in 1872, and 925,677 in 1871. Whatever be the cause of this decrease, which amounts to 6·7 per cent. compared with 1872, and to 16 per cent. compared with 1871, it is a feature of great promise. But, under the most favourable aspect, the acknowledged existence as a permanent part of the institutions of a free and prosperous country, of 800,000 absolutely helpless, destitute, and unproductive individuals, out of some twenty-three millions (the actual census return is 22,709,295), if we take the population of England and Wales alone, is not a fact calculated to prove the political wisdom of our poor-laws. Side by side with this return we cannot but quote the "Return of deaths from starvation, &c., in the year 1872," in the metropolitan district. The total is ninety-seven. This number is that certified by the coroners, and is furnished by a population of 3,253,379, out of which 106,742 were "in receipt of relief," in the first week of the month of May. The total relieved in that week, throughout England and Wales, was 805,780. No returns have been called for showing whether the proportion of deaths from absolute starvation to the number of paupers in receipt of relief, is the same in the metropolis and in the provinces. But the figures, as they stand, have a terrible significance. Mr. W. E. Forster, the president of the section, said that he believed society was responsible for the thriftlessnes of the working classes.

On the 22nd of September the attention of the Mechanical Section was directed to two inventions which are likely to exert considerable influence on one of the most urgent questions of the day, the price of coal. Our readers will remember that on more than one occasion on

which we have brought this subject under their notice we have pointed out the important part which mechanical appliances might hereafter be justly expected to fill in the functions of the coal-miner. We even ventured to suggest, from our acquaintance with the peculiar fertility of the American genius in mechanical combination, that the United States would before long, if not send coal to Newcastle, yet teach Newcastle colliers how to mine. It is from Massachusetts that the first illustration of our anticipation has been sent. It is the invention of Mr. Charles Burleigh, of that State, and is called the Burleigh rock-drill. The object of this invention is rather stone-cutting, or mining proper, than coal-cutting, but it is in its adaptability to the latter function, or in the light that its performance may throw on the proper construction of a machine specially adapted for the coal-miners, that the chief public interest attaches, at this moment, to the invention.

Appropriately associated with the exhibition of the Burleigh rock-drill, Mr. William Firth, of Leeds, read a paper "On Coal-cutting Machinery." The first question with reference to the application of mechanical power in coal-mines is that of the prime motor. The coal-mine itself supplies the stored-up heat by the liberation of which the power necessary for the drainage of the mine and for the extraction of the mineral is exerted. The coal-mine is at once the child and feeder of the steam-engine. Without the great invention of Watt it would have been impracticable to attempt the depths now pierced by our shafts, as neither water could have been pumped from the mine, nor coal itself drawn in quantities, by any conceivable application of human or animal power. But the steam-engine, invaluable at the mouth of the pit, is not available to supply power at the face of the miners' gallery. In 1761 an attempt was made to carry rods and chains down the pit, and by their aid to communicate motion to a mechanical contrivance below. Much ingenuity was called forth in this hopeless attempt. With the development that has been given to the steam-engine in the last five-and-twenty years, it has become easy to construct locomotive or movable engines applicable to the purposes of the builder; and it might have been thought that such would be advantageously introduced into certain mines. But independently of any difficulty as to the thickness of the seam to be wrought, the use of the steam-engine at the face of the work is incompatible either with the good ventilation of the mine or with its safety. The escaping steam would not only fill the mine with damp, but soften and bring down the roof.

It has long been evident to mechanics who have studied the subject that the true motive power for underground work is compressed air, —that is to say, compressed air is the true link by means of which the force generated in the boiler can alone be adequately applied to the face of the work. We have called attention to this subject in former articles, pointing out that the experience of the tunnel through the Alps was conclusive on this subject. Independently of the great facility with which compressed air may be conducted through a mine, in order to work a drill or other mechanical appliance at the face of the gallery, there is the rare and important advantage, in addition, that the escaping air at once ventilates the mine, and reduces the temperature within it.

Accordingly it is by compressed air that both Mr. Burleigh and Mr. Firth propose to drive their excavating machines. The former is described as looking like a large garden syringe supported by a slender tripod. It is worked at a pressure of 80 lb. on the inch. The cutting implement is a drill which is made to imitate in its movement the action of the drill of the miner. It gives 300 strokes in the minute, making a revolution in 18 strokes. It is readily set at any angle; and its action is to pierce a series of holes, which may either be used for powder, or otherwise so connected as to allow of the removal of large blocks of stone.

Mr. Firth's machine has the advantage of having already earned the character of a cheap and effective appliance; the decisive experiments having been made in West Ardsley, in 1862, and the apparatus now being in full and successful operation. The economical, as well as the mechanical, results were communicated to the section. The pressure of air employed is about three atmospheres. The engine for compressing the air is placed near the mouth of the pit, and the compressor feeds a receiver of 30 ft. long by 4 ft. in diameter. From this receiver iron pipes are led down the shaft and distributed through the workings, and finally an india-rubber hose, of 50 or 60 yards in length, is used to feed the engines at the face. These engines are at work at a distance of two miles from the compressor, without any sensible loss of power. The cutting engine in actual operation at West Ardsley weighs 15 cwt., and is 4 ft. long and 2 ft. 2 in high, running on wheels, which are coupled, like those of goods engines on a railway. A double-headed cutter, or pick, is set in motion by the compressed air, which cuts a groove of from 36 in. to 40 in. in the coal. The actual cutting point is keyed into the holder, so that it can be removed for grinding, and easily replaced. The action is reciprocating, and the speed attained is from sixty to ninety strokes per minute.

With regard to the economical performances of the engine it is stated that, on the "long wall" system, it can cut 20 yards per hour to a depth of 3 ft. Half this rate of progress, however, or 60 yards per shift, is very fair average work, and is equal to that performed by twelve average men in the usual mode of working. One man, one youth, and one boy are sufficient to tend the machine, lay the roads, and remove the material excavated. The equivalent in cost to the results of an average man's work obtained by this engine is stated to be 3½d. The economy effected by the use of the machine is calculated by Mr. Firth at 19d. per ton, but with the use of the double shift the advantage is greatly increased. Thin, hard seams of coal, that are too unmanageable to pay for hand labour, are economically workable by the machine. The safety of the mines and of the miners will be greatly increased by the adoption of mechanical excavators. The moral status of the men will be raised, by relieving them of that portion of their work which is of a painful and distressing character; the economy of the underground labour will be greatly improved, and placed on a firmer and less capricious basis by the change; and the practical outcome, and thus the economic value, of every shaft where mechanical coal-cutting is employed will be augmented, almost at will. On these considerations Mr. Firth has offered a reward of 500*l.* for the best coal-cutting machine that can be produced.

It must not be forgotten that all improvements of this nature which tend on the one hand to reduce the current price of coal, lead on the other hand to the more rapid exhaustion of the mines. On that subject we need not now enter. On the former every one of us has felt the shoe pinch, and pinch tightly during the past twelve months.

While the mainspring of our manufactures, coal, is thus regarded as the object of the application of mechanical ingenuity, another series of investigators have turned their attention to the more economic application of that heat which is liberated by the combustion of coal. The combination of heated air with steam is one of the methods adopted for this purpose. On this subject a description of the invention of Mr. George Warsop was read by Mr. R. Eaton. A stationary engine on the principle in question was exhibited at the International Exhibition of 1871, and we are now furnished with detailed results of the application of the same invention to the locomotive.

The mechanism of the plan consists in the addition to the ordinary machinery of the locomotive of a single acting air pump, which is driven from one of the cross heads, and which forces a constant stream of air, through a coil of pipes fixed in the smoke box, into the boiler. The air is said to enter the boiler at a temperature of about 650° Fahr.

The theoretic action of the air is that of dividing the molecules of water and of steam, retarding condensation, aiding ebullition, and, above all, preventing incrustation on the metallic surfaces. The latter action is marked by an unusual absence of leakage, in the engine supplied with the apparatus; the repairs of which have been extraordinarily few, as compared with those of others of a similar class. The tubes now at work in the locomotive described were inserted in January, 1868.

The economical result arrived at is a saving of 16·6 per cent. in the quantity of coal consumed, in addition to the increased densibility, and decreased cost of repairs of the engine. We have said enough to call attention to a very important subject.

Space, not matter, fails for further notice. A new and simple form of calculating-machine, called a mensurator, by Mr. W. Marsham Adams, which obtained a medal at the Vienna Exhibition, is an instance of a very different, but very useful, application of the inventive faculty. We have said enough to justify our remarks as to the bright promise of scientific progress which this meeting of the Association affords; and we congratulate the town of Bradford on the occasion with which its name is thus happily associated.

ST. GILES'S.

The names of two London parishes are continually used to express the two extremes of the social scale. As St. James's represents royalty and aristocracy, so St. Giles's represents the lowest of the "mobocracy": yet, curiously enough, three centuries ago the sites of these two parishes were both occupied by lazar-houses, and the names of the saints had long before been given to these hospitals, which were instituted for the same purpose of relieving persons suffering from one of the most loathsome of diseases. An old inhabitant of London, who wandered out of the City to the westward into the country beyond, might have seen at the same time, had he stood on some slightly-rising ground, two isolated buildings situated in the midst of damp, marshy land, and he would probably have felt great surprise had the future of the two been prophesied to him, and he had been told that St. James's would soon become the residence of a king, and gradually gather round it all the fashion of the town, but that St. Giles's would fall lower and lower in social consideration, and become at last a crowded resort of misery and crime, thus sinking from a pleasant village to one of the most wretched districts in London. This despised parish has, however, a history of the greatest interest,—in fact, it has a double history—first, one of respectability, and next, one of vagabondage.

The hospital was of great antiquity, and was founded by Matilda, daughter of Malcolm, king of Scotland, and queen of Henry I. of England, in the year 1117, for the reception of forty lepers, one chaplain, one clerk, and one messenger or servant. It was dedicated to a Grecian saint, known as "St. Giles of the Lepers," and was first called officially "the Hospital of St. Giles without London," but afterwards obtained the name of "St. Giles's in the Fields." Different kings granted various charters to the hospital, and in Henry III.'s reign Pope Alexander IV. confirmed its privileges by a Bull, in which he took it under his holy protection. As centuries passed, the hospital managed to draw to itself much landed property, and all went prosperously (with the exception of some dissension among the lepers themselves, caused by their too great prosperity) until the heavy hand of Henry VIII. fell upon it, in common with other ecclesiastical establishments. Henry kept the hospital and its precincts six years in his own possession, and in 1545 bestowed it upon Sir John Dudley, Viscount Lisle, K.G., together with Burton St. Lazar, in Leicestershire, a hospital to which the custody of St. Giles's had been granted, in the reign of Edward III. Lord Lisle forthwith fitted up the principal part of the building as a residence for himself, and leased out various subordinate parts of the structure to different tenants; but apparently he soon tired of his new acquisition, for two years afterwards he obtained the king's licence to convey the whole of the premises to John Wymonde Carewe, esq. The hospital was situated within walls, which enclosed a triangular space, bounded on the north-east by the High-street; on the south-east by Le Lane, afterwards Monmouth-street, and now Dudley-street; and on the west by Elde-strate, afterwards Hog-lane, and now Crown-street; the great gate being on the north, opposite the chapel, which afterwards became the parochial church of St. Giles. The "Capital Place or Mansion House" which Lord Lisle fitted up was situated a little to the west of the church. It was afterwards occupied by the celebrated Alice Duchess of Dudley, who died in 1669, aged 90, and later still by Lord Wharton. Strype describes it as follows:—"Lloyd's Court is divided from Denmark-street by Lord Wharton's house and gardens which fronts St. Giles's Church."

When this wet, marshy district was drained, and ditches were made about it, it became a more healthy place; and as early as the year 1213 a few cottages had been built outside the hospital walls. In Henry III.'s reign it had assumed the appearance of a scattered country

village, with a few shops and a stone cross, but it was still far from being what it afterwards became, "the very pleasant village of St. Giles," and early in the fourteenth century the number of inhabitants did not exceed 100. From the reign of Edward III. to that of Henry VIII., the inhabitants seem to have consisted of a few gentry and peasants, whose houses and cottages were scattered about, and some tradesmen, who dwelt for the most part in the main street. The names of some of these shopkeepers are preserved in the hospital grants, as "Gervase le Lyngedrap" (linendraper), and "Reginald le Tailleur." Among other names mentioned in these grants we find "Robert le Mower," "Robert le Crieur," "Roger le Fol," "Robert de Sco Egidio," and "Bartholomew, the crier of the Court of King's Bench." For some time previously to the dissolution of the hospital the population seems to have remained nearly stationary, but shortly afterwards it increased, and in Queen Elizabeth's reign, in spite of proclamations prohibiting the building of new houses under severe penalties, a great addition was made to its size. In 1547 the hospital was suppressed, but much of the wall that surrounded it remained in 1595; still at this date Holborn had extended so far west as almost to join St. Giles's-street, and shortly afterwards several streets were planned and many houses built. The rapid growth of London at this time attracted much attention, and in Thomas Freeman's Epigrams, published in 1614, and entitled "Rub and a Great Caste," are the following curious lines on "London's Progresse":—

"Why, how now, Babell, wilt thou build?
The old Holborne, Charing-cross, the Strand,
Are going to St. Giles's-in-the-Field:
St. Katerine, she takes Wapping by the hand,
And Hogsdon will to Hy-gate ere't be long;
London has got a great way from the streame,
I think she means to go to Islington,
To eat a dish of strawberries and creame.
The city's sure in progresse, I surmise,
Or going to revell it in some disorder
Without the walls, without the liberties,
Where she neede feare nor Mayor nor Recorder:
Well, say she do, 'twere's pretty, yet 'tis pity,
A Middlesex bailiff should arrest the citty."

The parish of St. Giles was well supplied in old times with places of detention and punishment, for it had a pound, a cage, a round-house, a watch-house, a pest-house, stocks and whipping-post, and gallows. St. Giles's Pound has had a fame such as we may safely say no pound ever had before; it was a landmark, and miles were measured from it, as they were from the Standard in Cornhill, Hickes's Hall, and Hyde Park-corner, and its name found its way into songs,—not, however, much to the credit of the neighbourhood, as,—

"At Newgate steps Jack Chance was found,
And bred up near St. Giles's Pound."

There is no record of the first making of the pound, but it was probably of considerable antiquity, as the parish, while a village surrounded by pasture-lands, would naturally require such a convenience. It originally stood in the middle of High-street, but was removed in 1656 to make way for some almshouses, and was then placed on the broad space where St. Giles's, High-street, Tottenham-court-road, and Oxford-street meet. In 1765 it was finally cleared away when certain improvements were made in the neighbourhood. The Cage adjoined the Pound when it stood in the High-street, and was used as a prison. The poor people who were so unfortunate as to find themselves in this place do not appear to have been treated with much consideration, for there are entries in the parish books of several deaths that took place there. In the churchwardens' accounts we find that, in 1641, 2s. were given to a poor woman that was brought to bed in the Cage, and shortly after 2s. 6d. was paid for a shroud for a poor woman, probably the same. On July 9, 1s. 6d. was given to Ann Wyatt, then in the Cage, to relieve her and buy her a truss of straw; and three days afterwards 2s. 6d. was paid for a shroud for the same Ann Wyatt. The Round-house was probably situated near the west end of the church against the churchyard, as appears by the order in the year 1686 that a gate "be made out of the wall of the churchyard near the Round-house," and further "that care be taken to have a wall erected at the west part of the Round-house for the security thereof, in regard the old buildings adjoining are taken away," because these old buildings must have been the remains of the hospital. In 1630 it was proposed to do away with the Round-house, and four years afterwards it was succeeded by the Watch-house, which was built by Mr. Rathbone, from whom Rathbone-place takes its name. Although the place was abolished, the title of *Round-house keeper* was continued by the constable of the parish long into the present century. A Pest-house was built in St. Giles's at the time of the Great Plague of 1665, and it was afterwards pulled down and the materials sold. In the previous visitations of this fearful infection the parish had made use of a general hospital called the London Pest-house, which stood near Coldbath-fields. The stocks and whipping-post were covered by a shed, and are supposed to have stood in the broad part of the High-street. In 1683, 7*l.* 17s. 6d. were paid for a new whipping-post, and in 1703 Mr. Pollett received 2*l.* for painting stocks, whipping-post, and shed. The gallows stood at the north end of the parish outside the hospital inclosure, where the Pound was afterwards placed at the junction of the three roads. Here Sir John Oldcastle, Lord Cobham, the Lollard, was executed in the reign of Henry V., and Babington and his accomplices in the reign of Queen Elizabeth. It is frequently stated that on the removal of the gallows from the elms in Smithfield in 1413, it was set up in this place, and continued here till it was transferred to Tyburn; but this is not the case, for it is on record that Judge Tressilian and Sir Nicholas Brember were executed at Tyburn as early as the year 1388, and there is no reason to believe that one place of execution was considered sufficient for the whole of London. It was, moreover, a favourite practice in times gone by to carry out the legal sentence against the criminal in a place near which he committed his crime. For many years it was the custom of the hospital to provide a bowl of ale for the criminal as he passed the great gate on his way to Tyburn. This last refreshment was called the "St. Giles's Bowl," and was commemorated in the sign of the "Bowl" public-house, which formerly stood on the site of Bowl-yard. A similar custom was anciently practised at York, which gave rise to the proverb that the saddler of Bawtry was hanged for leaving his liquor, for had he stopped, as was usual, his reprieve, which was actually on the road, would have arrived in time to save him. The hospital chapel became, as we have before mentioned, the parochial church when the parish of St. Giles was formed, and the building remained until 1623, when it was demolished. In 1617 orders were given for building a steeple and buying new bells, but when the alterations were made it was found that some of the walls were so rotten and decayed as to be in danger of falling down, and extensive repairs were therefore projected. In the end it was found necessary to pull the whole building down, and subscriptions were requested from the parishioners and from other parishes for the purpose of building a new church. The sum of 1,065*l.* 9s. was subscribed by 415 householders, the first donation being 250*l.* from the Duchess Dudley and the last two pence by "Mother Parker." Parton, in his "Account of St. Giles-in-the-Fields," writes:—"The total number of souls in the parish at this period did not exceed, perhaps not reach, 2,000. The subscriptions, therefore, upon an average exceeded 10s. 6d. for each parishioner, old and young, when 10s. 6d. was equal to 40s. of our present money. An example of liberality and munificence rarely equalled." Upwards of 450*l.* were received from non-parishioners and nearly 240*l.* from various parishes in the diocese of London, in addition to that collected from the residents. The new church was consecrated on the 26th of January, 1630, by Dr. Laud, Bishop of London, with great pomp and ceremony. It was a handsome building, of rubbed brick with stone dressings, and had a square tower surmounted by a turret. It was richly decorated in the interior, but during the Commonwealth was much defaced by the Puritans, who gave 4s. 6d. to the painter who washed the twelve apostles off the organ-loft, and 1*l.* 9s. 6d. to the glazier who took out the stained glass and replaced it with plain glass, and sold for 40s. the beautifully-carved wood chancel-screen which the Duchess Dudley gave to the church. In addition the organ, "whose confused musick hinders devotion," was sold, and the organ-loft let as a seat. At the Restoration, the church was as much as possible brought back to its original state. It underwent extensive repairs, but in spite of these it was found in 1715 to be in such a total state of decay that a new church was necessary. A proposal was now made that this should be one of the fifty new churches ordered to be built by Queen Anne's Act, and Parliament was petitioned on the subject. Nothing was done for some years, but in 1729 the commissioners agreed to build a new church on condition that the churchwardens and vestry of St. Giles settled a yearly income of 350*l.* on the rector of the recently-erected parish of St. George, Bloomsbury. The petition of the parish was strenuously supported by the Duke of Newcastle, the Lord Chancellor, and other eminent parishioners who had seats in Parliament, and to whom the thanks of the parish were voted for "the extraordinary pains they had taken in getting the above favour." It was opposed by the Archbishop of York and five bishops, with eleven temporal peers, who protested on five grounds, the chief one being that it was a bad precedent to rebuild *old churches* out of a fund appropriated for building *new ones*.

In June, 1731, articles of agreement were entered into with Henry Flitcroft, the architect, who contracted to take down the old church and rebuild a new one on the same ground before the end of 1733. The building has been generally admired, and on its first erection was thought to be one of the handsomest churches in London. The steeple is described by Ralph as "light, airy, and genteel."

In 1686-7 the celebrated "Resurrection Gate" was erected. This was the principal gate into the churchyard, and was ornamented with a curious bas-relief of the Day of Judgment, partly designed from Michelangelo's study. In 1800 the vestry ordered this gate to be removed, "and a new entrance and gate to be erected at the north-west corner of the churchyard." The wood-carving, however, was afterwards cleaned and refixed, and it still remains, though its position was again altered, to attract the eye of the curious passer-by.

The list of rectors of St. Giles's parish is a goodly one from 1547 to the present time, but the only man in it of great fame was the learned and laborious Brian Walton, who placed students of all ages under obligations by the publication of his magnificent Polyglot Bible. Others were well known in their day, and obtained the prizes of their profession, as Dr. Roger Maynwaring, Bishop of St. David's, Dr. John Sharpe, Archbishop of York, Dr. William Baker, Bishop of Norwich, and Dr. Buckner, Bishop of Chichester. St. Giles's was originally cut off from the rest of the town by reason of the loathsomeness of the disease, for the amelioration of which the hospital was founded, but it continued to be separated on account of its moral disease. Soon after the dissolution of the hospital the parish became the rendezvous of rogues and beggars, and it has remained for many years the city of refuge for the ragamuffins of London and Westminster.

In Queen Elizabeth's reign the rapid growth of London forced upon the attention of the Government some of those social questions which are still agitating society, and are still unsolved, and the remedy it proposed was to forbid the further erection of new buildings, and to order "all persons within three miles of any of the gates of the City to forbear from letting, or setting, or suffering any more than one family only to be placed in any one house." In 1585 a proclamation was issued in which the common evils were recited—"that great multitudes were brought to inhabit in small rooms, whereof a great part were seen very poor, yea such as must live by begging or worse means, and they heaped together in one house or small tenement; wherefore for offences of this sort, namely of increase of many indwellers, or, as they be commonly called, inmates or undersitters, which had been suffered within the last seven years, the proper officers were to see the same redrest." In another proclamation these vagrants are more fully described:—"that it was found in and about the City of London, and in parts in and about her Majesty's court, that there did haunt and repair a great multitude of wandering persons, many of whom were men from Ireland, with whom were also many other like vagrants and persons of that nation." St. Giles's and High Holborn were specially described as "great harbours for such misdemeaned persons." In the seventeenth century the Irish continued to arrive, and this parish is still their favoured home, so that from their settlement it obtained the cant appellation of the "Holy Land." It has been asserted that the colony of Irish in London equals in numbers the population of many a European capital. In 1710 the churchwardens stated "that a great number of the inhabitants of St. Giles's are French Protes-

tants;" and in 1720 Strype describes Stidwell-street and its neighbourhood as chiefly inhabited by French "and of the poorer sort," but now the foreign population is more confined to Soho, and does not extend to the east end of Crown-street.

The Vestry found out after a time that they could not leave the question of their poor to be settled by the rulers of the State, and in 1637 they ordered, "to prevent the great influx of poor people into this parish, that the bedles do present every fortnight, on the Sunday, the names of all new comers, undersitters, inmates, divided tenements, persons that have families in cellars, and other abuses." In 1639 six persons were appointed to assist the churchwardens "in discovering and avoiding inmates, sellar-mates, and new-comers." These are the earliest mentions of cellars as places of residence, which have since become so noted that the expression "a cellar in St. Giles's" is used to designate the lowest poverty. In the next century when Hogarth wished to paint the vices of the poor he went for inspiration to St. Giles's. His Idle Apprentice is taken up for robbery and murder in a night cellar in this parish; his Gin-street is in St. Giles's; and Tom Nero, in the "Four Stages of Cruelty," is a St. Giles's charity boy. Fielding, writing in 1751, refers to "great numbers of houses set apart for the reception of idle persons and vagabonds, who have their lodging there for twopence a night;" and adds that "in the execution of search warrants Mr. Welch rarely finds less than twenty of these houses open for the receipt of all comers at the latest hours; and that in one of these houses, and that not a large one, he hath numbered fifty-eight persons of both sexes, the stench of whom was so intolerable that it soon compelled him to quit the place." A Middlesex magistrate declared in 1815 that "in the early part of my life (I remember almost the time which Hogarth has pictured) every house in St. Giles's, whatever else they sold, sold gin; the situation of the people was dreadful. I lived with a relation of mine then, who employed a vast number of people, and observed the lower orders, then in a terrible state." Mr. Sampson Stevenson gave evidence before a committee of the House of Commons, in 1815, on the state of the beggars of St. Giles's, and described them as a society in which the young members are initiated in all kinds of extortion by the elder ones. He stated that they could make 3s. or 4s. a day each by selling in Monmouth-street the shoes that they had begged on their rounds. The evenings of these worthless creatures were spent in drunkenness and quarrelling.

Mr. Sydney Smirke, in his "Suggestions for the Architectural Improvement of the Western Part of London" (published in 1834), describes the condition of St. Giles's in much the same terms as Fielding used nearly a century before. He writes,—"The unutterable abominations of it can only be conceived by those who, in the exercise of charity or in quest of crime, have been forced to become familiar with its recesses. It is, indeed, the retreat of wretchedness, the nest of disease, and at once the nursery and sanctuary of vice. . . . . There is scarcely a single sewer in any part of it; so that here, where there is the greatest accumulation of filth, there is the least provision made for its removal." "The lodging-houses generally consist of six or eight small rooms, each of which often contains six beds; and it is no uncommon circumstance for sixty persons to be sleeping in one of these loathsome abodes. For the use of these wretched beds (if such they may be termed) fourpence or sixpence is required per night; and it is a fact familiar to the parish officers, that great properties have been, and still are, accumulated in this way." The worst part of the parish was the notorious Rookery, which may be described as the triangular space bounded by Bainbridge-street, George-street, and High-street, St. Giles's. The larger portion of this district was levelled previously to the building of New Oxford-street, which was opened in 1847. Unfortunately, the consequence was that the neighbouring dens were regorged with a still denser crowd, and in 1848 a committee of the council of the Statistical Society reported on the state of the inhabitants and their dwellings in Church-lane. They visited all the houses and found them in the most deplorable condition. The street was strewed from end to end with night-soil, sweepings of houses, decayed vegetables, &c., and the inhabitants were so closely packed that the average supply of air for each person was calculated at only 175 cubic feet, the largest being 605, and the smallest 52. Now 1,000 cubic feet of air are deemed necessary for a single prisoner in England, and 800 cubic feet for a soldier in a barrack in India. The committee classified the occupation and character of the inhabitants as follows:—1st shop-keepers, lodging-house keepers, publicans, and some of the under landlords of the houses, who make considerable profit by letting rooms furnished and unfurnished. 2nd. Street-dealers in fruit, vegetables, damaged provisions, and sundries; sweeps, knife-grinders, and door-mat makers. 3rd. Mendicants, crossing-sweepers, street-singers, persons who obtain a precarious subsistence, and country tramps. 4th. Persons calling themselves dealers, who are probably thieves, and the occupants of houses of ill-fame. 5th. Young men and lads of ages varying from eleven to thirty, known as pickpockets and thieves of various degrees. About one-half of the inhabitants were Irish, chiefly natives of Cork. Mr. Horace Mann showed that, during the six or seven years since the census of 1841, the population of Church-lane had increased at the rate of about 67 per cent., which must have principally been owing to the so-called "improvements" of the neighbourhood. Mr. Mann also pointed out that many other parts of St. Giles's were in as unsatisfactory a condition as Church-lane. Nor in this recapitulation need we omit reference to the particulars that have been given, from time to time, in these pages, and afterwards reproduced in compacter form.

Hear, too, what the medical officer of the district, Dr. Ross, says in his last report, just now issued:—

"Tramps, wife-deserters, beggars, pick-pockets, and women of bad repute occupy the common lodging-houses in St. Giles's (south). There are more than 2,000 of these persons, the large majority of whom are single, or at least live as celebates. They are nevertheless prolific. A considerable amount of the sickness and mortality of St. Giles's, and a large proportion of the cost for supporting its pauperism, are caused by the occupants of these houses. These lodging-houses are moreover the seething hot-beds of depravity and crime, and being adjacent to the habitations of the lowest class of our labouring poor, the indecent and immoral habits of the population infect whole streets, and cast a gloomy shadow of squalor and vice over the entire locality. It would be a mercy to the labouring poor to scatter these people from their haunts."

Only a limited number of houses harbouring them should be allowed in each district. By massing these outcasts together, as they are in St. Giles's, they are effectually cut off from all humanising influences, and their moral corruption only becomes more aggravated.

We will now leave the consideration of the moral condition of the parish, and return to its topography. The names of many of the streets continue the fame of some of the early inhabitants, as Whetstone-park, from William Whetstone, a parishioner and vestrymen in the reign of Charles II.:—

"Near Holborn lies a park of great renown,
The place I do suppose is not unknown.
For brevity's sake the name I shall not tell,
Because most genteel readers know it well."

Wild-street takes its name from Wild or Weld House, Drury-lane, which was purchased from the builder (Sir Edward Stradling) in 1651, by Humphrey Weld, esq., a vestryman in 1669, and ancestor of the Welds of Lulworth Castle, Dorsetshire. Short's-gardens were built upon the gardens attached to the mansion of Dudley Short, an eminent parishioner and vestryman in the reign of Charles II., and Brownlow-street occupies the site of Sir John Brownlow's house and gardens, which were in part demolished about the year 1682. Lewknor's-lane (or Lutenor's-lane), now called Charles-street, took its old name from Sir Lewis Lewknor, who was a vestryman in 1618, and subscribed towards the building of the church in 1623. If this place ever had a respectable existence it must have been a very short one, for in Butler's time it was notorious for the profligacy of its inhabitants. Dyot-street, celebrated in the song of *Fusbos* ("Bombastes Furioso"),—

"So happy to live and to die,
In Dyot-street, Bloomsbury-square,"

but now reduced to the insignificance of George-street, obtained its old name from Philip Dyot, who lived for many years at Dyot House.

Monmouth-street was long notorious as the abode of Jew dealers in left-off wearing apparel, and as the street in which the too well-known "St. Giles's Cellars" were chiefly situated. Monmouth-street no longer exists, for in the year 1845 its name was changed to Dudley-street in the belief that a new name would give it a new start. Its character, however, is but little altered, and although the cellars may not now be slept in, the second-hand clothes and boots are exposed to view.* The old name is generally supposed to have been given to the street in honour of the Duke of Monmouth, who lived in Soho-square; but Peter Cunningham suggested with much more probability that it was called after Carey, Earl of Monmouth, who died in 1661, as he and his father had both been distinguished parishioners of St. Giles's. The present name was given in honour of the Duchess Dudley, who died in the seventeenth century.

It would be impossible within any reasonable limits to mention all the celebrated persons who have been connected with the parish, and we can, therefore, merely give a few names,—as the Earls of Southampton, the Earls of Chesterfield, the Russell family, Lord Herbert of Cherbury, the Marquises of Winchester and Worcester, the Duke of Montagu, and a large number of other noblemen, Dr. Andrew Borde, Sir Kenelm Digby, Sir Godfrey Kneller, Drs. Mead and Radcliffe, Sir Hans Sloane, and Sir Richard Steele. Among the eminent persons buried in the church or churchyard of St. Giles's are the poet Chapman (d. 1634), to whose memory Inigo Jones erected an altar-tomb at his own expense; Lord Herbert of Cherbury (d. 1648); James Shirley, the dramatist (d. 1666); Richard, or "Boscobel," Penderell, commonly called "Trusty Richard" (d. 1671), Andrew Marvell (d. 1678); the infamous Countess of Shrewsbury (d. 1702); and Sir Roger Lestrange (d. 1704).

The parish of St. Giles has always been well supplied with inns and places of entertainment, and one of the earliest of these appears to have been the Croche Hose, or Crossed Stocking, which was kept by the hospital cook in 1300. The sign was a stocking crossed with red and white. The Swan on the Hop was another house of very old date, of the existence of which in the thirty-fourth year of Edward III.'s reign there is documentary evidence. The White Hart was in existence in the reign of Henry VIII., and is mentioned in Strype's edition of Stow (1720). Dick Turpin and his accomplices met at this house. The Rose is mentioned in a lease dated 1675, and was then more than 300 years old.

The Vine, which was taken down in 1817, is supposed to have marked the spot where the vineyard in Holborn mentioned in Domesday Book stood. The parish meetings were held at the Maidenhead in the reign of Charles II., but after a time it decayed into a resort of beggars and desperate characters. The Cock and Pye gave its name to the Cock and Pye-fields, upon which Seven Dials were built. The Tangier Tavern was a noted haunt of thieves and gamesters, and Claude Duval lay there in state before he was buried in Covent Garden Church in 1669. Other inns might be mentioned, but they do not merit much attention.

At the end of the seventeenth century, an attempt was made to raise a portion of St. Giles's into a fashionable neighbourhood, and the person to make this attempt was the same man who proposed building Clarges-street, Piccadilly. Thomas Neale, Groom Porter to the King, obtained a grant from the Crown of the Cock and Pye Fields, formerly the Marshlands, and commenced building the streets known as Seven Dials. On the 5th of October, 1694, Evelyn "went to see the building beginning neere St. Giles's, where seven streets make a star from a Doric pillar, placed in the middle of a circular area, said to be built by Mr. Neale, introducer of the late lotteries, in imitation of those at Venice." The name was given to the place from a column in the centre, on the summit of which were seven sun-dials, with a dial facing each of the streets. This column was removed in July, 1773, and transferred to the park of a country gentleman. Previously to the erection of this column, the name was the Seven Streets, as it is called in Hatton's "New View of London" (1708). Seven Dials has a literature of its own, and for many years the large supply of ballads and dying speeches, hawked about the streets, has issued from this spot. James Catnach, who lived in Monmouth-court, was the great producer of this literature. He was the first to use a better paper, and to print large editions of trials, and in consequence he managed to amass a considerable sum of money, a large portion of which was said to have been made during the trial of Queen Caroline. He made over 500*l.*, by Weare's murder and Thurtell's execution, and not liking to lose so profit-

* A charming essay by "Boz" touching these boots will be remembered.

able a subject, he brought out a broad sheet, headed, "We are alive again," which sold largely, but many did not like the trick put upon them, and called it a "catchpenny," a term which has stuck to the issues of the Seven Dials press. The sale of execution ballads and last dying speeches and confessions was formerly very large, but the penny newspapers have now reduced the circulation of these broadsides. Of the execution ballads of Rush's murder, and of that of the Mannings, 2,500,000 copies were sold respectively. Of Courvoisier and Greenacre, 1,600,000 each, and of Müller's only 100,000 copies were sold, other sources of information being open to the people in the latter case. Catnach had a great dislike to buying new type, and he was up to all manner of expedients to save himself, such as turning letters upside down, and making p, d, b, q, stand the one for the other. He made his own woodcuts, or bought such old ones as he could obtain. Most of Catnach's customers who were cadgers and hawkers, paid him pennies, and he made the journeymen and boys in his employ take their wages in coppers, so that on Saturday night they had to get their wives and mothers to help them home with their load. His neighbours, however, would not give him silver for his copper, as they feared contagion in his money on account of the filthy sources from which it had come to him. In consequence, he was obliged for a time to take his pennies in large bags to the Bank of England; but subsequently he washed and boiled them in a strong decoction of potash and vinegar, which caused them to look as bright as when they came from the Mint. Catnach retired from business in 1839, with a fortune of between three and four thousand pounds. The business of the Catnach press has been carried on by, first, Paul & Ryle; secondly, A. Ryle & Co.; and, thirdly, W. S. Fortey, who has on stock now half a million of ballads, or more than 900 reams. The authors of these edifying productions obtain but poor pay, for the uniform sum received is but one shilling. If the ballad have a great sale, the "poet" may be rewarded with a trifle additional, but he has no claim to such liberality.

The contrast is so great between the pleasant village of St. Giles, and the poor parish of St. Giles, that it of necessity points a moral which he that runs may read. It is sad to find a district given up for centuries to misery of the most debasing character. In Queen Elizabeth's reign, we find the same evils complained of that exist now, and the miserable condition of the place is seen to be the same when drawn by the pencil of Hogarth, and by the pen of Fielding, in the last century, and those of the Statistical Society and the *Builder* in the present century.

The history of St. Giles's exhibits much that is worthy of serious consideration; but it will not be necessary to mention here more than two points,—first, the impossibility of arresting by small efforts the natural decay of an ill-reputed district is exhibited in the failure of the attempted creation of a fashionable neighbourhood at Seven Dials; secondly, the so-called improvement of a bad neighbourhood by driving a new street through its worst parts, without further arrangements, is often an evil instead of a good. When at the building of New Oxford-street a portion of the Rookery was destroyed, it was supposed that the neighbourhood had been improved; but we have seen that the poor were only driven closer upon themselves. The clearings made for "improvements" cannot be considered satisfactory unless some place is prepared for the inhabitants who are turned out, and we have urged for years the necessity of doing this. Great improvements have been made in St. Giles's of late years by the Local Board of Works and other institutions, and the large death-rate has been reduced, but much more remains to be done. All that has been hitherto effected has been brought about by gradual improvement; but really to stamp out the great evils it is necessary for a large and combined effort to be made. A clean sweep is required, but not to make way for a better class of people. Healthful dwellings must be built on a large scale for the present inhabitants.

Salisbury Cathedral.—In the west front of this cathedral, two new statues, the gift of private munificence, have just been fixed. One of them bears the name of St. Remigius, Bishop of Rheims, in the sixth century, who baptized Clovis.

THE CLEANING AND PRESERVATION OF PICTURES.

The great master, Nature, creates and then erases his beautiful works. In the full consciousness of power he is not solicitous to preserve. What he has done he can do again. Beauty passes through its transient phases, blooms, fades, decays, and dies. The lesser artist, man, is more solicitous about the preservation of his works,—the works which have cost him so much study and labour,—and, fearing lest such heights of excellence shall never more be attained, takes every means to preserve his "little best," in order that it may be handed down to posterity. Whether the zeal with which he struggles against fate and oblivion be praiseworthy in the eyes of wisdom we shall not here stop to inquire. Society has decided that the preservation of fine pictures is a sacred duty. If it be, we can only say that some pictures have been fortunate in escaping its preserving, restoring, and tender mercies. We have been behind the scenes, and know full well what "picture cleaning and restoring," in its ordinary acceptation, means, or, rather, did mean.

A picture is a most delicate structure. Nothing can well be more easily injured. It is to the extreme veneration and care of an art-loving people that the preservation of the finest works of the old masters is due. Something of this freshness is perhaps attributable to the use of simple vehicles and colours, and to the unhesitating mode of execution, but far more, we believe, to careful custodianship. Modern pictures are knocked about from dealers to auction marts, from auction marts to dealers, from dealers to purchasers, and are kicked, cuffed, doctored, and varnished in a way not at all calculated to improve either their constitutions or their outward appearance.

The mere washing, with pure water, of a recently-painted picture, will, if it is not done with the greatest possible care, sensibly injure it. The final thin glazes and paintings are easily removed if sufficient time has not elapsed for them to become thoroughly dry and hard. Varnishing at this period is even more destructive, and we have seen the varnishing-brush clogged with the disturbed paint of pictures varnished at too early a stage of their existence. Modern pictures, however, are frequently submitted to this injurious process within a short time after their completion, to give them a glossy appearance, and to prepare them for sale and re-sale, as they come into and pass out of the market again and again. We would counsel the proprietors of modern works never to allow their pictures to be either cleaned or varnished, except under the advice and supervision of the painter himself; or, failing this, of some artist of experience and ability.

The works of Sir Joshua Reynolds would not have been the wrecks they, for the most part, are, had it not been for the reckless cleanings which they have undergone. There is scarcely one in ten of his pictures which has not been flayed by unskilful and unscrupulous hands. His pictures were the more susceptible of injury, the more vulnerable, from the fact that he was inconstant in his method of painting, and continually experimenting with pigments, vehicles, and varnishes.

All the pictures of the old masters are by no means equally redoubtable against the attacks of "cleaners and restorers," as many a cleaner has learned to his cost. We recollect one of the fraternity, and of very great repute, rest his soul, who had a very large share of the picture-daying of the country committed to his hands. This worthy man in every respect, save when let loose upon pictures, would rejoice when he had discovered the discarded sky of an ancient landscape-painter, by removing the final work and decision of the master. At last, however, he was rash enough to apply some of his strong solvents to the thinner painting of Velasquez, and the consequence was, that a large and well-known picture was half swept from the canvas. The injury was, however, repaired, by a skilful painter, and it is now in the list of our specimens of undoubted, original, genuine old masters. We would neither allow the picture of an old master nor of a modern painter to be touched, cleaned, or varnished, without grave deliberation,—without consulting with or engaging the supervision of a skilful painter. Picture-cleaning has advanced, and is better understood now than twenty or thirty years since. Restorers are better informed and more careful than they were; still, they frequently do too much, and are not sufficiently painters to dispense with artistic direction.

We doubtless set too great a store upon collecting ancient works of art, and are carrying our collecting mania to a ridiculous excess. *Quality* is of far greater importance than *quantity* in our national collections, which even now might be weeded with considerable advantage.

We should advise the contraction of all our National Art Exhibitions to reasonable and symmetrical proportions. We must get rid of our absurd tendency to copy foreign institutions, and take an independent course. We must no longer jump to the conclusion that it is right to have colossal exhibitions of works of art, because France, Belgium, Germany, Italy, or Spain has them. Italy may be truly said to be one gigantic gallery, and yet modern Italian art is not in advance of the less favoured nations. Canova's reproach that "we see with our ears rather than with our eyes," still holds. We are moved in art matters by "loud talk," instead of looking for ourselves and seeking the advice of quiet understanding. It is unfortunate that upon these matters, as upon most others, the ignoramuses more readily listen to or read the outpourings of a charlatan than the man who thoroughly understands what he is either talking or writing about. This human trait, this English trait, is perhaps more palpable in questions of taste than in those appertaining to other subjects. Painters and sculptors, more than any other class of professional men, are doomed to be lectured by the ignorant, without any qualms upon the part of the lecturer that he is offending against wisdom and good manners.

THE SOCIAL SCIENCE ASSOCIATION IN NORWICH.

The congress has been auspiciously opened, and promises in many respects to be especially useful. Lord Houghton, as president, gave the inaugural address on Wednesday evening, and travelled critically over many subjects. We must confine ourselves to a few passages, commencing with his too brief allusion to

Sanitary Matters.

No practical progress, he said, I fear has been made in the vexed question of sanitary reform. Day after day it comes before us illustrated with fresh disaster and moral difficulty. The conflict of powers can only be averted by some absolute authority, and even when that authority is established, it too often refuses to move. There could be no better evidence of the exigencies and embarrassments of the present state of things than the story of the Bill which Mr. Powell and Sir Charles Adderley introduced during the late session. It was evidently supported by the Government; but the new arrangement which prevents any fresh matter from being brought on after half-past twelve having delayed the second reading, when it had passed the next stage the session was too far advanced for any further procedure. The loss of this measure is much to be regretted; it would, among other useful enactments, have given to rural sanitary authorities the powers of making bye-laws and of compulsory purchase which are now only possessed by the urban authorities, and would have enabled the Local Government Board, by order, to supersede the sanitary authority in cases of nonperformance or neglect. It will, perhaps, be found necessary in future legislation on this pressing subject, to give to a much smaller proportion of the inhabitants than is now required the means of setting the Local Government Board in motion, and owners must have more power to act independently of their tenants.

Competitive Examination.

The opening of the public service to general competition has been hailed by a large portion of the public as a wise and generous concession on the part of the governing classes in the surrender of official and private patronage. Perhaps if it were more generally understood how great an incumbrance and trouble patronage is felt to be by public men, and how, with the rare exception of being able to satisfy private friendship and promote obscure merit, it brings with it neither pleasure nor gratitude, they would not be surprised to hear that it has been given up with so little resistance. As I see that the subject will form part of your sectional proceedings, in which I may have the opportunity of taking part, I will content myself with the

observation, that we may have too much regarded this innovation in its relation to education, without comprehending its political significance. Before its establishment the service in the public offices was performed by a very diversified body of men, nominated by heads of departments, peers, members of Parliament, and other persons who might chance to possess political influence. They were educated to their work in their separate offices, and performed it with creditable efficiency. One effect of this patronage was the dispersion of these appointments among all classes of society; but it was the poor and unfortunate who, by the interest their position excited, obtained the largest share. Another consequence was, that the public servants formed no cohesive body, with common interests and common claims. The Civil Service is the creature of Competition. How far it will add to the general content and happiness of British Society remains to be seen. It may possibly result in the existence of a class ill satisfied with their remuneration, chafing at their stationary or slowly-advancing position, conscious that they started in life with no obligations except to those who supplied the money for their tutorship (and education of this kind is, for the most part, a matter of money), and to their own faculties of memory and rapid apprehension. Whether they will be especially patriotic and public-spirited as becomes the servants of the State, is another question which I will not attempt to answer. Within the last few weeks the competition is extended to all the departments of the Home Office, to all clerkships in the offices of the Commissioner and Receiver of Police, the Inspector of Reformatory and Industrial Schools, and the Directors of Convict Prisons, as well as to the Junior Sub-Inspectorships of Factories,—services that hitherto have been thought, if not to demand, at any rate to be the better for, some special qualities which examinations cannot test, and some moral characteristics which are not the subjects of marks and figures. How long the Foreign Office will be allowed to retain its limited nomination I cannot tell, if we are to measure the appreciation of the value of those merits for which it is eminent by the disregard implied in the indiscriminate opening of other departments which might have been supposed equally to require perfect confidence and high discretion.

Co operation.

Speaking of the development of the principle of co-operation in rural industries which seems to have taken place in the Western States of America, of such extensive proportions as may affect to a great extent the social relations of vast numbers of those rapidly-increasing populations, Lord Houghton said:—They propose to supply the whole agricultural community of the far Western States with every article of food, machinery, furniture, and dress, without the intervention of any middle-men whatever; and, if they cannot acquire sufficient power over the present railway system to compel them to submit to any terms they choose to dictate, to establish an exclusive railway system of their own. As long as a combination of this nature is carried on solely by constructive and even repressive means, there is no ground on which they should not be allowed fair play; but if we find the tendency of all such schemes to be aggressive, then they require to be watched with all the care with which aristocratic or monarchical tyranny has been guarded against and put down in former times. The saying that the "despotism of the one is preferable to the despotism of the many" is so far true that the one, or even the few, can only assert and maintain their authority through the medium and with the assent of the many; whereas the many are, in the nature of things, absolute over the few. From the smallest strike to the vastest democracy, this is the dangerous principle which every lover of human liberty is bound to contend against and to modify, if he is unable to put down. It has to be adroitly managed, and to be treated with careful restriction as were the governing powers of old, and, in the process of events, it may come to be limited just as they have been. Only do not let it be excused, or encouraged, or even elevated into something sacred by a kind of surreptitious loyalty, which is just as unreasoning and as servile as the adulation of a bad king or a dissolute oligarchy. Do not palliate its violence, do not excuse its frauds; give it all the responsibility of power; bow to it when you can do nothing else, with the sense that it is the right of the strongest, but do not idolise it into a superior justice or transcendental benevolence. It is thus that a true Social Science will regard the thoughts and hopes of Socialism. If it can work its way by legitimate influence on the minds of men, if it can divorce them from old associations, if it can lay a new foundation of philanthropy, if it can open fresh channels to intelligence and new paths of virtue; it deserves neither repression nor contempt, nor should it be judged wholly by its excesses. The horrors of the Paris Commune are no worse than those of the St. Bartholomew or the Sicilian Vespers, and there have been plenty of mad resistances in history parallel with those now going on in Spain. The ultimate judgment will depend not on whether such things are done, but whether such things are vindicated. And yet the tendency to such outrages cannot be left wholly out of the consideration of the merits and virtues of the schemes themselves. A pretension to right society by destroying society is simply nonsense.

Land Laws.

There is evidently something about property in land which peculiarly affects the imagination of mankind; but there has never been in this country the hunger for the soil which has occasionally maddened foreign peoples; and there has been a general devolution from the feudal times which has made the mass of the people the friend and protector of settled estates. It is for better historians than I am to inform you how it came about that the land of England became the property of comparatively few owners, while on the other side of the water France has been divided into an immense number of peasant ownerships, not, as is commonly believed, by the violent confiscation of the Great Revolution, but for centuries before. The Revolution relieved the small owner from the imposts and forced labour which he was bound to give to the "seigneur," but otherwise made little proprietary change. Nor has the occupation of small portions of land been with us remarkably successful where it does exist, as, for instance, with the statesmen of our north-western counties, either in the improvement of the soil, or the social elevation of its possessors. Agricultural work for certain wages, and tenancies-at-will,—modified by the customs of different districts, or by contracts in the form of leases,—have hitherto well satisfied the wants and views of our population. But speculations altogether of another nature have been started by a small, though energetic, class of politicians, and have received some consideration from what may be called higher and more competent thinkers. It is not easy to attach any definite idea to the word "monopoly" in connexion with the possession of land, which is so frequently in the mouths and writings of these reformers. There is no compulsory restriction or legal impediment to the possession of land by any number of persons, provided there is somebody to sell and somebody to buy; and the fewness of the owners depends entirely on social and financial, not on political causes. The historical and local concentration of a large amount of land in the hands of certain members of the governing class has come about, at least for any period of time which can be seriously regarded as influencing the question, without violence to any other man's rights, and without injury to the feelings of any portion of the community. It is an investment of capital, like another, made necessarily by wealthy men, the returns being comparatively small and uncertain. Whatever limitations or peculiar conditions are attached to its possession, are purely voluntary, and affect, no doubt considerably, certain other persons who stand in family relations to the possessor, but no one else. Even these may and will be done away with, as soon as the parties interested are sufficiently eager for the change to form a distinctive public opinion on the matter. Year after year Mr. Locke King has brought forward his Bill for the assimilation of landed and personal property in cases of intestacy, a measure not only unobjectionable in itself, but eminently useful as the abrogation of the only statute which, though depending itself on voluntary action, somewhat favours the vulgar notion of a compulsory law of primogeniture; and it has not passed into law simply because enough persons have not died intestate to impress the public mind with any sense of injustice. The power,—a totally different thing from the obligation,—of settling land on a person yet unborn, and which, even in the case of a son, has no earlier origin than the forensic subtleties of the sixteenth century,—for the law of England abhors perpetuities,—will probably be soon subject to further limitations, quite as much in the personal interests of the private owner as for any projected national advantage. There is, however, no greater fallacy than to believe that improvements of the land are materially checked by our present system of settlement. The capital invested in them is attracted there quite as much by solicitude for descendants as by the hope of present gain. The material advantage is, in short, very distant and problematical, and if the professor thought of nothing but his own profit, his interest would often lie rather in exhausting the soil than in developing, at a present sacrifice, its future powers of production. This view is well stated in Lord Salisbury's able Report of the Committee on the Improvement of Land in cases of settled estates. The recommendations of that committee will probably result in a Bill for the extension of the power of trustees to spend trust-money upon the improvement of land on redeemable mortgage, and enable limited owners to levy a charge for improvements, redeemable within a certain period exceeding the average expectation of life, or, if in concert with the remainder-men, to substitute his or their expectations for his own.

THE DUST DIFFICULTY.

The St. Pancras Works Department has established a very effective mode of obviating the difficulty of getting dust removed from the houses in the parish. Whenever complaints are received at the office of the non-removal of dust from any house, the work of removing it is at once given to a contractor especially engaged for that purpose, and who is new to the work, and the cost of removing the dust (6s. each load) is deducted from the amount paid to the parish contractor.

THE RUINS OP BAÄLBEK AN D THEIR PRESERVATION.

Some two or three years have elapsed since you allowed me to call the attention of your readers to the perilous condition of these grand remains. Almost unrivalled in the magnificence of their original plan, and still to be classed among the most impressive and picturesque groups of ruins in existence, these temples are rapidly being lost to the world. Of all that remains of the great Temple of Baäl (now, alas! but six splendid columns), we may safely predict that the next generation will see nothing but the fallen and broken fragments. I cannot assert that it is possible to avert this disaster for many years to come; but I am now able to give to others, more competent than myself, the opportunity of judging whether it is or is not possible so to do.

The committee of the Palestine Exploration Fund suggested to the officer commanding their surveying party, Lieut. Conder, R.E., that he should employ some of the time during which the excessive summer-heat compels a suspension of the out-door survey work, in preparing a careful report of the exact state of those portions of the Baälbek ruins which seem most immediately in danger of destruction.

That report I have the pleasure of forwarding to you for publication, believing that it will thereby be brought to the notice of those best able to judge of the peril of a monument whose loss they would be the first to deplore.

J. D. Crace.

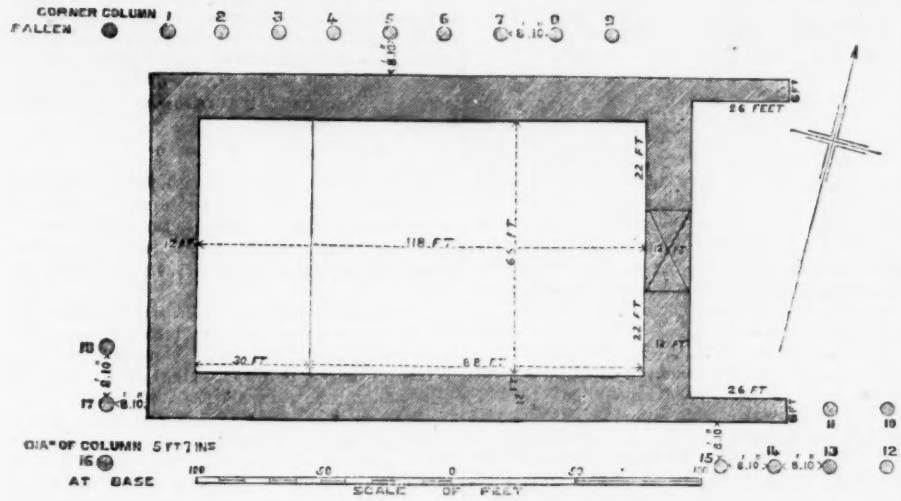
Report on the Condition of the Temple of Jupiter and the "Six Columns" at Baälbek, Bludaä, 22nd August, 1873.

Sir,—Having, in accordance with the orders of the committee of the Palestine Exploration Fund, visited and examined the ruins of the Kalaäh, at Baälbec, I forward the following report for their information, and for that of the Institute of British Architects:—

My attention was directed to three principal objects.

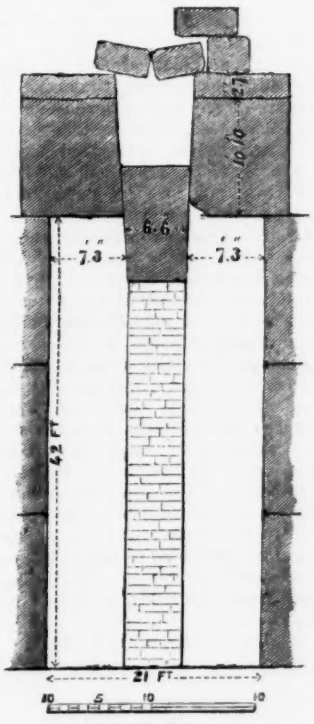
1. The condition of the keystone of the great lintel of the Temple of Jupiter.
2. The condition of the peristyle of the same.
3. The condition of the six remaining columns of the great Temple.

1. The eastern doorway of the Temple of Jupiter is 21 ft. wide and 42 ft. high in the clear. The jambs are huge pilasters, in three courses, containing interior staircases. The lintel consists of three stones, the central keystone being slightly tapered, as in an arch, and apparently once held in place by metal clamps. The stone is a hard, compact, non-fossiliferous, white limestone. I have taken its specific gravity roughly at 2·5, in order to approximate the various weights, but send home a specimen



Plan of the Lesser Temple, or Temple of Jupiter.

to allow of their being more exactly determined. The keystone measures 10 ft. 10 in. in length, 12 ft. in thickness, and has an average breadth of 6 ft. 5 in. It must, therefore, contain approximately 858 cubic feet, which will give a weight of 134062·5 lb., or about 60 tons.



Section of the Great Portal, showing the slipped Keystone.

The above sketch will show the present condition of this stone. It has slipped down rather more than half its depth from its position, and on the south side only about one quarter of its side bears against the other block, which is broken away below. A wall of roughly-squared stones, about 1 ft. cube, in mortar, has been built under the keystone by the Turks, and appears to be a suitable and sufficient support. The only objection which can be made to it is that the soffit of the stone is thus covered, and the eagle invisible. Should it be proposed to raise the lintel to its former position, the superincumbent stones each weighing about twenty or thirty tons, must first be removed. I did not observe any indications of the present danger except from the jar which the fall of the smaller stones of the cornice might give. The other blocks of the lintel appear to be safe. The fall of the keystone is probably attributable to the removal of the metal cramps, and to subsequent shocks of earthquake.

2. *The Peristyle.*—On the north side nine columns remain with roofing; on the west, three, with only the entablature; on the south, four, and two of the fluted inner row, which ran from the antæ, and in front of the temple on the east.

Following the numbers on the attached plan, I proceed to describe the north side first.

Judging from a fallen column, the heights are as follow:—

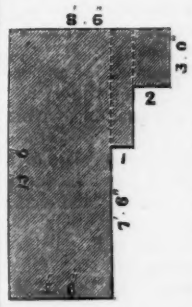
	ft.	in.	
First stone	22	5	Shaft,
Second „	14	11	48 ft.
Third „	11	3	7 in.
Capital	5	11	
Base	3	4	
Total	57	10	

The diameter of the base is 5 ft. 7 in., and at the capital, 5 ft.

I may note that the dimensions given in "Murray" for both temple and pillars are too great.

The intercolumniation is 8 ft. 10 in., and the width of the peristyle, in the clear, the same.

The weight supported by each pillar is that of the portion of the entablature between two columns, a length of 14 ft. 5 in. from centre to centre, and half that of the roofing for the same length. These are easily calculated. The roof-slabs are 3 ft. thick, and allowing for the bearings, 12 ft. wide. This gives approximately 522 cubic feet, or 81562·5 lb. Thus the weight on the pillars is nearly 18¼ tons.

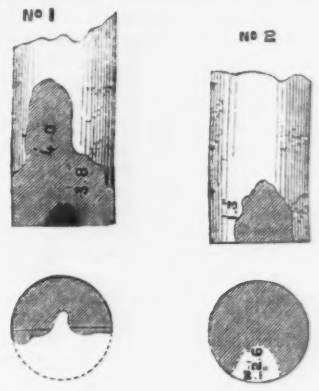


The section of the cornice may, for simplicity, be taken as giving an area of 86·25 square feet. For 14·5 ft. run, this gives 1,250·6 cubic feet, a weight of 19,540·6 lb., or about 87½ tons.

Thus each pillar bears a crushing weight of 105½ tons on an original section of 26·4 square feet, or 4 tons per square foot. The centre of gravity of this weight is easily calculated, and will be found to pass through the centre of the pillar.

Column No. 1 (see sketch), is leaning slightly out of the perpendicular towards the west. The first stone is slightly shattered, and the material is cut away on the north-east side to the centre and across, in such a manner as to leave only half the column to support the weight. The cubic contents of the part destroyed, which is of irregular shape, will be equal to about 44 cubic feet.

This column is therefore in a critical condition, liable to fall outwards, and bring down that part of the roof and cornice which it supports. The excavation has been made on that side on which the weight is greatest, and the pillar decaying from natural causes is weakest. I observed no injury to the higher stones of the shaft.



No. 2. At the bottom of the lowest stone a piece has been cut out, as shown, not extending quite to the centre, and having a cubic content of about 6¼ cubic feet. The remaining stones are safe, and the pillar is secure from toppling, but a portion equal to a half cylinder of radius, 2 ft. 3 in., must be subtracted from the bearing area of the shaft which resists the crushing weight above.

No. 3. On the east side a portion is cut out at the bottom of the first stone, extending inwards 3 ft., or past the centre of the column; mean height, 1 ft. 3 in.; mean breadth, 1 ft. 7 in.; cubic contents, nearly 6 cubic feet. It appears as if the weight above were too great for the column, which is cracked from the sides of the excavation nearly three-fourths of its circumference. This may be only a superficial injury; but does not seem due to weather action alone.

No. 4. The depth of the excavated portion at the bottom of the first stone is very great, 3 ft. 8 in. (with a diameter of 5 ft. 7 in. for the shaft); mean height, 1 ft. 1 in.; mean breadth, 2 ft.; cubic contents, nearly 8 cubic feet.

No. 5. Length of excavated part 3 ft., or greater than the radius; mean breadth, 2 ft.; mean height, 1 ft. 6 in. The first stone is also shattered slightly (app. 9 cubic feet).

No. 6. Length of excavation, 2 ft. 6 in., or not equal to radius; mean breadth, 1 ft. 9 in.; mean height, 1 ft. 8 in. (7½ cubic feet). These columns, Nos. 3, 4, 5, 6, all stand perpendicular, in good line, and their upper stones and capitals are in good preservation. The shape of the excavation is roughly that of a half cone in each case, being the least that was possible for the end intended, namely, the extraction of the central metal dowels.

No. 7. The excavation at the base is on the east side, and its cubic contents about equal to a quarter of a sphere 4 ft. diameter. Just above the excavation is a horizontal crack extending about half round the circumference, and no doubt due to unequal pressure (cubic contents of excavation, 1¼ cubic foot).

Nos. 8 and 9. A portion of the bottom of the first stone on the north side is excavated; a large block from the roof has fallen just within the circumference of the ninth column, and the excavation thus closed appears full of rubbish. The pillar has cracked close to the excavation. In No. 9, on the north side, at the top of the first stone a large flake has been taken out; its area will be about a third of a cone of 2 ft. 2 in. radius, and of a height of 5 ft. The condition of this pillar, weighted only on the west side, appears to me to be critical.

The general conclusion arrived at is that the two outer columns, but especially No. 1, are in a dangerous condition; the next to them are cracked and overloaded; and the remainder, though at present safe, would suffer in the same manner from unequal loading on the fall of the outer columns.

The condition of the entablature is also unsafe; the architrave is cracked across between Nos. 3 and 4. The projecting cornice seems, as far as can be judged from below, not to be bonded into the remainder; and between Nos. 9 and 8 it has fallen and is replaced by small masonry in mortar; between 1 and 2 it has also fallen,

and portions are slipping between Nos. 3 and 4, and Nos. 5 and 6. This cornice consists of narrow blocks, but the frieze and architrave, of single blocks, from pillar to pillar.

The roof on this side is perfect throughout, except between Nos. 7 and 8.

On the west side of the temple three columns remain, supporting frieze and architrave, but roof and cornice fallen. Nos. 17 and 18 are chipped one-fourth of their diameter in depth on the outerside, at the top of the lowest stone. They may, however, be considered safe. On the south side also, though chipped and slightly shattered, the column appears in no immediate danger; the weight, however, of the tower above this portion is very considerable; nor do I understand how this subsequent addition, not entering into the original design, can be in any way beneficial. It has been said to "diminish the thrust," but the curve of the roof is so slight that any thrust to which the columns are subjected must be more than counter-balanced by the weight of the entablature.

It would, I think, be well to remove this turret, though a work of some difficulty.

THE SIX COLUMNS.

The diameter of these columns is 7 ft. 6 in. at the base; the height, according to Murray,* who gives diameter and entablature correctly, is 75 ft., including base and capital. The entablature is exactly similar to that of the former temple, and its centre of gravity is at a distance of 3 ft. 3 in. from its north side; thus bringing the greatest weight on the south side of the columns. We give an outline sketch of the group.

The columns are exposed, from their position, to the full force of northern and westerly gales, and have suffered far more on these sides. They are shattered from top to bottom, and flaking off rapidly; they appear to have been subjected to the effects of frost as well as of rain and wind.

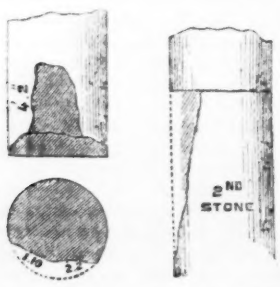
There appear to have been two small dowels instead of a large central one; and there seems good reason to suppose, from the extreme smoothness of the faces of the planes which were in contact, on the upper and lower surfaces of the shaft blocks, that greater security was sought by the adhesion which would result, and make the toppling of any block from the one beneath less possible.

No. 1. Commencing from the west. — Two pieces excavated just above the base, being each equal in bulk to a quarter sphere of 1 ft. radius (app. 1-5th cubic foot), the greatest depth to which either penetrates is 2 ft. 3 in. A flake extending upwards from the base 10 ft. and giving in about 1 ft. also appears. A large portion of the base, extending the whole height on the north side, is also cracked off. It contains about 70 cubic feet.

The column is apparently in an unsafe condition.

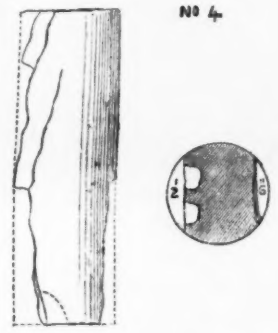
No. 2. An excavation has been made 2 ft. 6 in. high, 2 ft. deep, and with a mean width 3 ft. 2 in. It contains probably about 15 cubic feet. All three of the stones in the shaft are shattered and flaking off on the north side.

No. 3. The north-west corner of the base block is cracked off, apparently by weather action; the piece containing 56 cubic feet, 2 ft. by 4 ft., and 7 ft. high.



A flake, reaching to a height of 4 ft. 2 in. from the base, is fallen from the lowest block; a piece varying from 2 ft. 2 in. to 1 ft. 10 in. at base has been cut off across the pillar. On the north-east another flake, 10 ft. high, has come off. The second stone is much weathered on the north side; and a flake about 1 ft. thick, extending over one-third of the circumference, has been peeled off, its height being nearly three-quarters of that of the block on north-east side.

* Murray's dimensions are taken from Wood & Dawkins.



No. 4. This pillar is very infirm, large flakes have fallen off, and the cracks show that more will follow. At the bottom only about half the diameter is left for bearing-surface; and one of the dowel-holes is visible. Excavations have also been made into it on the north side, and a flake 6 in. deep by 6 ft. high has come off on the south. The outline is much as shown in the sketch.

No. 5 has a piece chipped off the corner of the base block, 3 ft. 10 in. high, 1 ft. 6 in. deep, along one side of the block. The highest stone of the shaft is cracked, and a slice of varying height, extending 3 ft. inwards, is taken out of the lowest block.

No. 6. No pillar among the six is so shaky as is the last; it is evidently giving way, and its fall is not unlikely to bring down No. 5. This fall may very possibly occur in the next great storm. Underneath the base a stone is abstracted, measuring 3 ft. 6 in. by 2 ft. 8 in. by 4 ft. 4 in., apparently 40½ cubic feet. Two square holes, one 1 ft. 6 in. cube, the other 2 ft. 4 in. by 2 ft. 4 in. by 2 ft. in height, are cut into the lowest block of the shaft.

The highest stone is cut away under the capital for about one-third of the diameter of the shaft on the west side, where the weight of the entablature presses. A chip 10 in. deep runs round the bottom of the lowest block for nearly two-thirds of its circumference, and a slice 2 ft. thick, and 7 ft. 4 in. by 5 ft. 6 in., is taken off the base on the east side.

More ominous still is an ugly crack in the capital, which is subjected to the crushing weight of the cornice without any support beneath.

The architrave is also in a perilous condition; between Nos. 1 and 2 it is cracked across, as also between 3 and 4 it has a long crack parallel to its length, and is only uninjured between 5 and 6.

There is nothing special to report as to the condition of the wall on which the columns stand.

Notes on Preservation.

The detailed account of the condition of the ruins will be by far more valuable than any suggestions I can offer as to their conservation; but a few notes may be of interest.

Materials.—It will be important as far as possible to use the materials existing on the spot.

Stone may be obtained, in any quantity, within the ruins or in the quarries.

Lime.—The surrounding country consists of a soft chalk, yielding a fair kind of lime. A large kiln exists near the town. The native mortar consists generally of pure lime.

Wood.—Baalbek is surrounded with gardens of poplar, in great abundance, growing from 30 ft. to 60 ft. in height, and varying from 6 in. to 10 in. diameter at the butt. The wood is of good quality, used for roofing, and resists well a crushing weight. Scaffolding of this material would be satisfactory. The wood is grown for sale, and gardens might be bought and felled some months before wanted for use. Should the local supply be insufficient, great quantities can be found in any direction within a few hours' march. Price from 2s. to 4s. per tree.

Iron.—Metal is precious in the eyes of the natives; but I see no reason why it should not be used at the great heights where it is required most. The clamps for the lintel might be painted stone-colour, and would thus be unnoticed by wandering depredators, who would want the means of attaining to the height at which they would be placed.*

Cranes.—Before attempting any thorough restoration, it would be well worth while to send out one of the small steam-cranes and travellers used in public buildings in England. Without such power very little would be done of permanent use. To send this plant by sea to Beyrout, and thence along the French road, and up the Bŭkāā plain, on a strong-wheeled vehicle, to the very ruins, would be easy, and appears to me indispensable.

Labour.—The Fellahin might, under a negro overseer and European director, be very useful; their wages should be 10d. per diem. For excavation, the native donkeys, with baskets to hold earth, slung as panniers, would be the best means of removing the rubbish. Price of a donkey, 10d. per diem.

* * * * *

Lieut. Conder then goes into the question of how best to proceed with preservative work, if such should be undertaken. He then continues,—

In concluding my report, I may say a few words on the points of interest noticed in our visit.

The two great vaults, with semicircular arches, which support the platform (running parallel) have many Roman inscriptions on the keystones.

One of these, DIVISIO · MOOCHI, is noticed by M. Waddington, but we were fortunate enough to find in the other vault the same word, "Divisio," with an illegible name and an obscure date. This indicates that they lead to two separate divisions or quarters of the inclosure. We also copied three other inscriptions not found in Waddington, though, perhaps, of little importance.

The beautiful wall on the north side, where all the stones (with shallow draft and fine-picked faces, as in the best work at Jerusalem) appear *in situ*, shows numerous common Greek masons' marks.

The three great stones in the western outer wall rest on two courses of smaller, and on a foundation with a sloping set-back immediately intervening. This has (somewhat absurdly) been called "The Phœnician bevel," and the blocks supposed of Phœnician origin.

The tool work, and method used in transportation, are similar to the rest of the masonry; and I am unaware of any reason beyond the size for supposing them older. The builders who could poise the great shafts and entablature of the temple of Baal 75 ft. from the ground must have been fully able to place stones 64 ft. long at the lower level they occupy.

In searching together for masons' marks, my attention was directed by the Rev. W. Wright to a stone in the course below one of the huge blocks in question, the face of which was curved. On digging we found that it seemed undoubtedly a column shaft, flattened on two sides, and built in horizontally. It rests upon another stone beneath the surface. This discovery, whilst militating against the notion of Phœnician origin for the great stones, shows how highly desirable a thorough investigation of Baalbek is to be considered. In the interior there must be from 8 ft. to 10 ft. of rubbish, which cannot fail to hide from us fine statues fallen from the countless niches of temple and court, coins, and perhaps sacred treasures, or inscriptions serving to unroll the cloud of mystery which hangs over the noblest ruins in Syria, perhaps I may say in the world.

CLAUDE R. CONDER, LT. R.E.,
In command Survey of Palestine.†

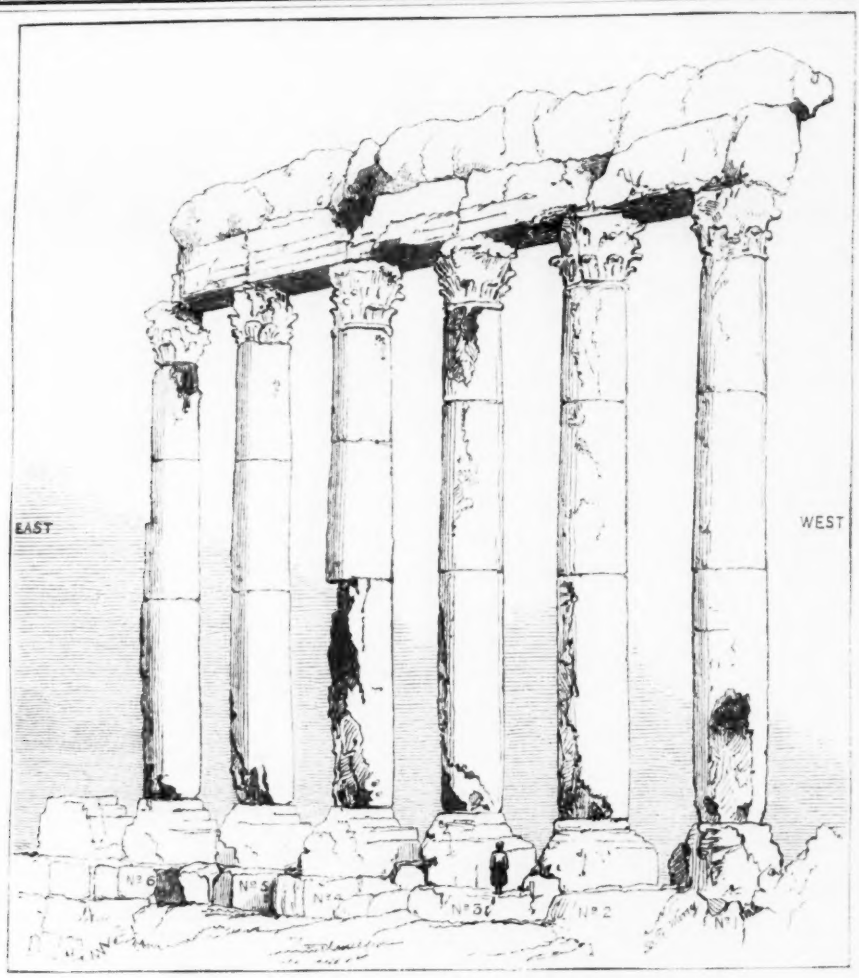
MANCHESTER WHOLESALE FISH MARKETS.

WE add to the illustrations and descriptive particulars of the new markets in Manchester, already published,* a transverse section looking towards the narrow end of the building. Besides showing the construction of the roof, this serves to make more clear the arrangement of the cellars and ice-houses, and the position of the upper offices provided for the larger salesmen.

* Lieut. Conder is too hopeful. The iron could not be *kept painted*, and the Arab depredators would blow up (or down) the whole structure to gain the value of a few gold coins.—J. D. C.

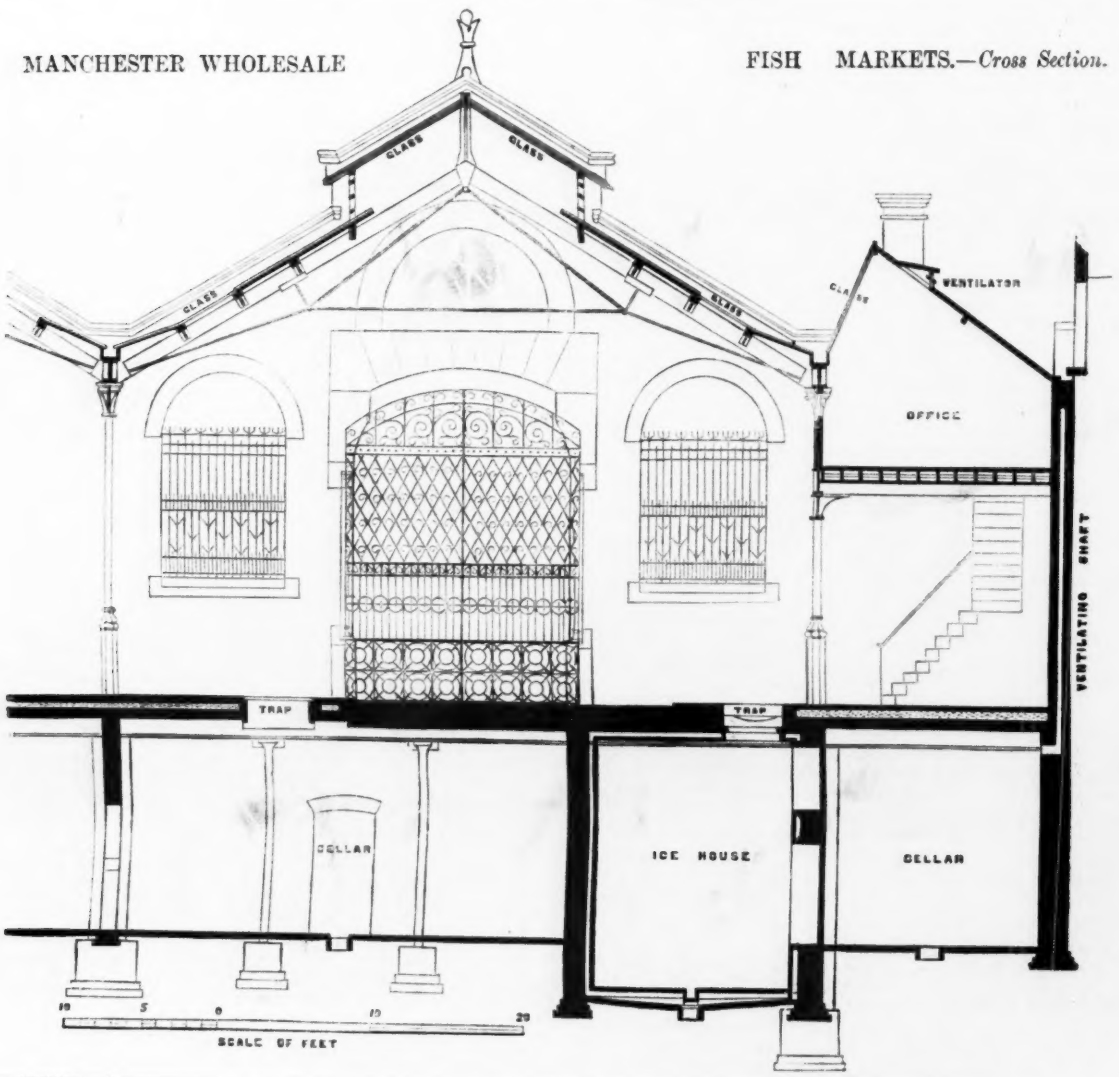
† The original report will be found at the office of the Palestine Exploration Fund, 9, Pall-mall East; and a copy has been sent to the Royal Institute of British Architects, 9, Conduit-street.

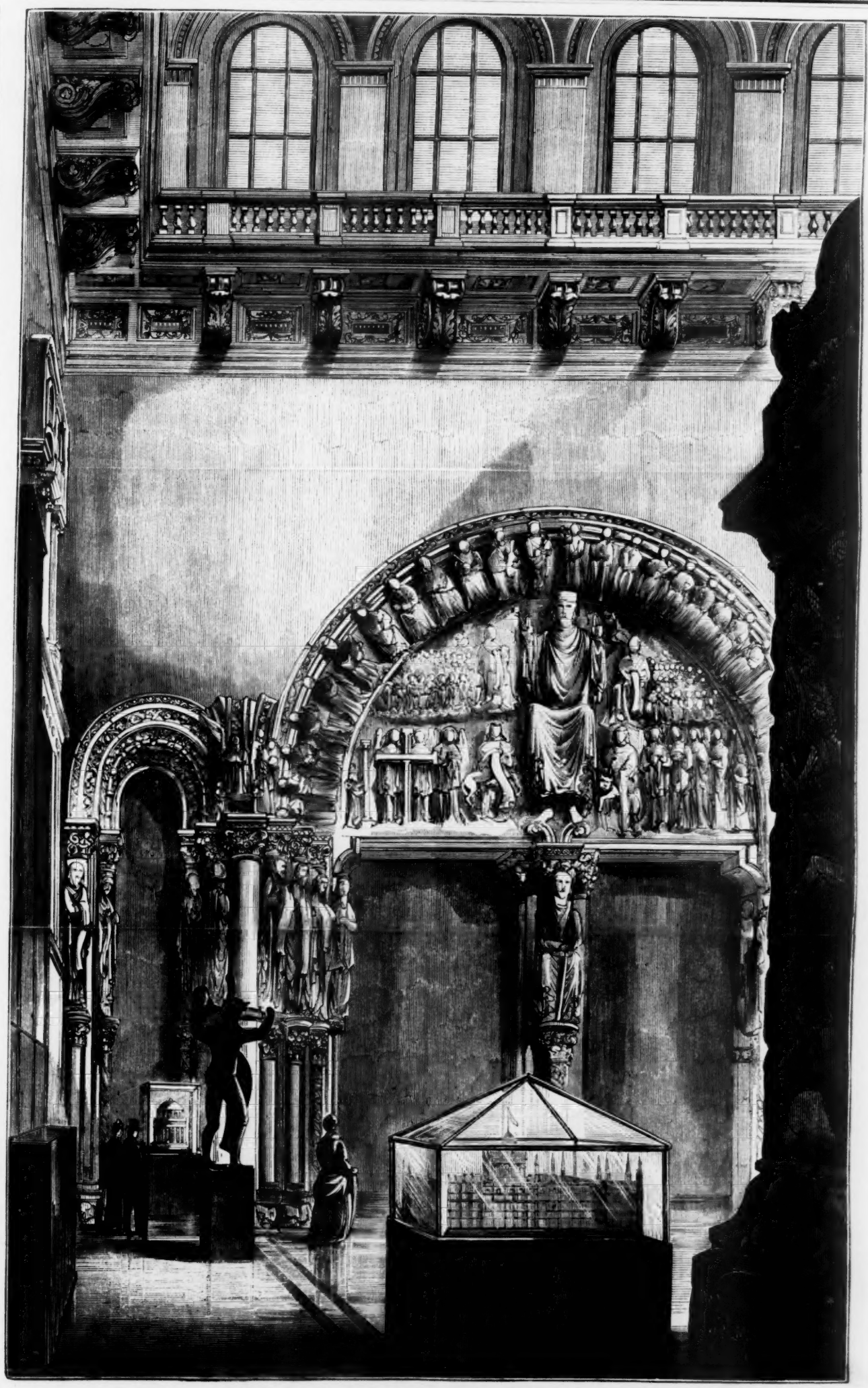
‡ See pp. 725, 726, and 727, *ante*.



BAALBEK: SKETCH OF THE SIX COLUMNS.

MANCHESTER WHOLESALE FISH MARKETS.—*Cross Section.*





IN THE ARCHITECTURAL COURTS, SOUTH KENSINGTON.

The Trajan Column, and the Portico de la Gloria, Santiago de Compostella.

THE ARCHITECTURAL COURTS, SOUTH KENSINGTON MUSEUM.

THE TRAJAN COLUMN AND THE PORTICO DE LA GLORIA, SANTIAGO DE COMPOSTELLA.

THERE are some impressions that can scarcely ever be effaced. Innumerable "things of beauty" may be seen in the course of a lifetime; but many of these crowd upon each other, and, competing for remembrance, obliterate recollection altogether, or only leave impressions that are hazy and indistinct. There are some experiences in life, however, in which the objects presenting themselves for observation or contemplation are so striking, it may be unique also, as to defy competition in the effect they produce upon the mind, and the impression they make is indelible. Such experiences, for instance, as the first sight of the Crystal Palace of 1851; the first entrance to Notre Dame, Paris; the first glimpse of Mont Blanc. Notwithstanding the immense distance between the objects we have named and the new Architectural Courts in the South Kensington Museum, we shall not be far wrong if we place the remembrance of the first visit to these new halls as amongst the impressions likely to remain. The boldness of the idea, the height of the apartments, the magnitude of many of the objects with which they are filled, and the beauty of others, all concur to produce a lasting effect. The two courts are each 135 ft. long by 60 ft. wide. The height to the spring of the ceiling is 72 ft. 6 in., and to the centre of the ceiling 83 ft. The width of the corridor is 17 ft. The style of the architecture has a general affinity with that of Rome, but is modified in certain details of bases, capitals, and mouldings. The ceiling is a framework of wood, the timbers being laminated. The galleries are supported on iron brackets, covered by plaster decorations. The balustrades are of terra-cotta. The principal lighting is from the roof, and very effective. Round the walls, under the galleries, are the names of architects of all periods, and on a border, near the eye, are the names of cities in which, collectively, examples of every style of architecture are to be seen. The architectural sculpture of the great Renaissance masters of France is illustrated by a few bas-reliefs, and there is one example of the illustrious Italian, Benvenuto Cellini. The courts were erected from the designs and under the superintendence of Major-General Scott, C.B., assisted by Mr. James Wyld.

One of the most remarkable and imposing of the casts is the full-sized reproduction of the Trajan column at Rome. The original dates from about the years 114—116. It was erected, and its sculptures ordered, by the Roman senate to illustrate the two Dacian wars, and to receive the ashes of the Emperor Trajan, to whom alone the Romans gave the title of *Optimus*. The bas-reliefs have been taken from a series reproduced in metal by direction of the late Emperor Napoleon III., and are built round brick cylinders. At the height of their position their careful study is difficult, but the galleries afford advantages not enjoyed in Rome. These sculptures not only illustrate the Dacian wars, but also incidentally the military system, warlike engines, ships, musical instruments, and sacrificial rites of the Romans. It is such a pictorial representation of manners and customs as may be seen on many tombs and temples of the ancient Egyptians.

The bas-reliefs for the columns are being reproduced in Paris from the casts made by order of Napoleon III., and only a certain number have been as yet affixed to the shaft; the pedestal, however, is almost complete. In anticipation of the completion of the column, and of the publication of the special memoir and description that is passing through the press, a few leading particulars concerning it may be interesting.

Trajan's column is the work of the architect Apollodorus, of whom, as well as of Trajan, it is a lasting memorial. It is composed of 34 blocks of white marble, 9 of which form the basement, 23 the shaft, and 2 the torus and capital. The column is eight diameters in height; from the foundation to the plinth, 18 ft.; the plinth, 3 ft.; the torus, highly ornamented, 3 ft. 3 in.; from the plinth to the capital, both inclusive, 98 ft.; the pedestal supporting the statue, 16 ft.; the whole structure, exclusive of the statue, 132 ft.; diameter at the base, 12 ft. 3 in.; and at the neck of the column, 10 ft. 9 in. There is a door on one side of the pedestal that admits to a spiral staircase of 185 steps, that receive light from 45 small windows. These steps are hewn out of the marble which forms the shaft. This staircase conducts to the summit of the column. The statue of Trajan, of bronze gilt, originally surmounted the column, the statue holding a golden sepulchral urn containing the ashes of Trajan. This statue was removed in 1589 by Pope Sixtus V., and a statue of St. Peter, of the same material, put in its place. The architecture of the column is mixed, the base and capital being Tuscan, the shaft Doric, and the mouldings of the pedestal Corinthian. The distinctive peculiarity of the column lies in the sculpture and carving of the pedestal, and especially in the *bassi relievi* that cover the shaft in a spiral band. As the figures rise and recede from the eye the width of the band is increased from 2 ft. high in the lower part to nearly 4 ft. at the summit. The pedestal is covered with bas-reliefs, representing warlike instruments, shields, helmets, &c., and over the door there is the following inscription, borne by two winged figures:—"SENATVS. POPVLVSQVE. ROMANVS—IMP. CÆSARI. DIVI NERVÆ. F. NERVÆ. TRAJANO. AVG. GERM. DACICO PONTIFF—MAXIMO. TRIB. POT. XVII. IMP. VI. COS. VI. P.P.—AD DECLARANDVM QUANTÆ. ALTIDVINIS—MONS ET LOCVS. TANTIS OPERIBVS. SIT. EGESTVS." The sculptured history told by these wonderful examples of ancient art relates to the two Dacian wars of Trajan, the first in three campaigns. Amongst other scenes in the series are, the passage of the Danube by Trajan's cohorts by a bridge of boats; possession of *Viminacium*; march of the Roman army by land and water; council of war; the first sacrifice of the campaign; message des Bures; oration by Trajan; fortified camps of the Romans; Dacian spy conducted to the Emperor; pontoons constructed; advance on the enemy; *mêlée*; sacking a village; the army marching in a river bed; distribution of rewards; Dacian ambassadors to Trajan; pursuit of the Dacians; a princess taken captive; Roman camp; attack on a fortification. Second campaign, A.D. 102.—Voyage in the Adriatic; debarkation; march of the Romans into the interior; defeat of the Parthians by the Roman cavalry; grand battle; submission of the three Dacian princes; Dacian prisoners; ambulance; Roman army on the march; battle; march through the forest; oration by Trajan; imprisonment of the captive Dacians; distribution of rewards to the Roman soldiers. Third campaign.—Trajan's embarkation; passage of the river; pursuit of the enemy; sacrifice; oration or "allocution" by Trajan; the army *en route*; encampment of the legions; reception of a Dacian ambassador; construction of a fortified Roman camp; combat in the forest; assault on the camp; submission of Décébale; oration by Trajan; Victory, with wings, recording the triumphs of the conquerors, and war trophies. Second Dacian war, A.D. 106.—Embarkation of the troops from Ancona; Trajan's cordial reception by municipal authorities; further marches; reaches Cisalpine Gaul; sacrifice; disembarkation of the army at Istria; march into the interior; grand sacrifice; Trajan in a simple toga; movements in the forest; movements of the Dacian army; bridge over the Danube; town of Mœsie; the army crossing the bridge over the Danube; Trajan on horseback; new sacrifice; oration by Trajan; Roman camp; movement of the troops; camp scene; the army on the advance; camp; soldiers foraging; Dacian camp; combat on the mountain; Roman camp; another *mêlée*; strong fortification; battle; Dacians fight with heroism; ambassadors from Décébale; the Dacian princes poison themselves, and die in horrible convulsions; a large number of Dacians sue for grace and pardon; Roman camp; movement of troops; new camp; a bridge constructed; last entrenchment of the Dacians; assault on the Roman camp; Trajan, from a high tribune, addresses the army; council of native princes; Dacian ambassadors, with presents, arrive at Trajan's camp; death of Décébale; escorts of Dacian prisoners final subjugation and emigration of the Dacians.

Trajan, who was tribune for a seventeenth time, did not survive the Parthian war, or live to see the splendid monument erected to his honour by the Roman Senate and people. The bas-reliefs on the column embrace 2,500 figures, many of the parts being in an excellent state of preservation. Considering the vast extent of the work, the precision in the execution of the various parts, the successful care in grouping, and the minuteness of detail, as in horses and men in mail *cap-à-pie*, are perfectly marvellous. The shields of the warriors, apparently a species of *repoussé* work, the fascines and gabions, the armour of various kinds, even the features and hair, as well as the garments of the figures, are depicted with extreme minuteness. Many of the groups are, in form, execution, grouping, and the play of light and shade, very beautiful, and the whole furnishes a valuable means for the study of military antiquities.

Among the books on the subject that may be recommended to students is the excellent and compact work of M. Froehner, illustrated by M. Jules Duvaux.* In his introduction, M. Froehner gives interesting chapters on the history of the Dacians before the time of Trajan; a short account of Trajan before the wars with the Dacians; account of the wars with the Dacians; the social state of the Dacians; a chapter on the life of Trajan; a description, with plan, of Trajan's forum, which leads up to the body of the work; a description of the sculpture on the pedestal; and a description of the bas-reliefs on the shaft.

De Rossi's "La Colonna Trajana disegnata" is also well worth attention. The *magnum opus* on the subject is probably the great work, in course of publication, of MM. Froehner and Arosa.† This is certainly a superb work, and the illustrations are of the highest character, but they suffer from the necessarily fragmentary manner in which they are presented. The fine old work of Joannes Baptista Piranesius contains numerous plans, sections, and illustrations of the pedestal and other carvings on an enlarged scale. It has also the merit of continuity, in as high a degree as is possible, in the manner in which the bas-relief band and its subjects are illustrated.

The reproduced Trajan column at South Kensington is necessarily divided into two parts.

Contiguous to the Trajan column is a most commanding object, a full-sized cast of "El Portico de la Gloria," from the Cathedral of Santiago de Compostella, Spain, shown in our engraving. The observer of this assemblage of sculptured figures can scarcely fail to be impressed with a sense of its magnitude and magnificence, the imposing character of the assemblage of representations of prophets, apostles, and other saintly and sacred personages. The alto-relievo and undercut work, apart altogether from the design, in this fine example of twelfth-century art, cannot fail to command admiration. Master Mateo, it appears, was the architect, and finished the work in 1188. The complete doorway consists of three arches, divided by massive piers, composed of clustered columns, half disengaged from the body of the pier. The width of the central arch is 23 ft. One of the side arches is 7 ft. 10 in.; the other, 7 ft. 2 in. The central arch is semicircular, the side arches are also semicircular, and stilted. The central arch is filled by a solid tympanum, resting on two long blocks of stone, which are supported by a central pier. The column that fronts the central pier, and the inner shafts of the three arches, are carved with spiral bands of sculpture, consisting of foliage, animals, knights engaging dragons, &c.; the last-named are of marble. The fronts of the two main piers are faced by engaged columns, with shafts 14 in. in diameter; the inner carved shafts are 11 in., and the intermediate shafts 10 in. diameter respectively. The shafts rest on bases 12 in. deep, and are supported by crouching monsters, as is common in the churches of Northern Italy of the Lombard period. The monsters under the pier and side are open-mouthed, to give light to a crypt below. With a like object the mouths at the central shaft are open; these are held under the two arms of a man, life-size. The monsters forming this plinth are of various character; one has a vulture's beak, swine's ears, and lion's claws; it is bearded, and represents Pride. Another is devouring a boar's head, and another has asses' ears. These emblematic figures are intended to represent wilful ignorance, cruelty, gluttony, and other sins. The shafts above this base are 5 ft. 10 in. in height, and are tied to the piers by collars half-way up. They have caps 2 ft. in height, carved in the Romanesque manner, with bold stems, leaves, and animals, the lines and masses of the sculpture being well

* La Colonne Trajane décrite. Par W. Froehner. Paris, 1865.

† La Colonne Trajane, reproduite en Typographie d'après le Surmontage, exécuté à Rome, en 1861 et 1862. 220 planches en couleur. Texte orné de nombreuses vignettes. Planches by Gustave Arosa. Texte par W. Froehner, Conservateur du Louvre. Paris: J. Rothschild, Editeur.

brought out by the hollows round these parts. The abaci of the caps serve as pedestals for a series of images, 5 ft. 10 in. in height. The figures on the smaller arch to the right are supposed to represent Ezekiel, Baruch, Jeremiah, Daniel, Isaiah, and Moses. Scrolls, with legible characters thereon, are in the hands of, or otherwise associated with, the various prophets. On the left pier of the central and the two sides of the left-hand arch, are, in the place corresponding to that of Moses, the Apostle Peter; St. Paul; St. James the Greater, Apostle of Spain; St. John the Evangelist; St. Andrew; St. Matthew; St. Philip; and St. James the Less. The innermost marble shafts of each arch pier are carved with representations of combats of warriors with monsters, sins, &c. The one under the prophet Isaiah represents the sacrifice of Abraham. This subject, says Mr. Riano, "begins, according to the authors who have treated it, with the figure of Seth attacking idolatry, and ends with the capital representing the descendants of Abraham bound down by sin." The cap has an altar draped in the Mediæval manner, the kneeling figure of Isaac, his head bent back to receive the sacrificial stroke, angels arresting the hand of Abraham, all detailed with precision and effect. The central pier serves as a support to the two lintels, on which the tympanum of the arch rests. The shaft is of coloured marble. Eleven figures placed in this part, amongst branch and leaf work, represent the line of descent from David to the Blessed Virgin. These are David, Solomon, Josaphat, Joash, Hezekiah, Josiah, Salathiel, Zerobabel, Eleazer, St. Anne, and the Blessed Virgin. The capital is carved with a composition representing the Holy Trinity, with four angels offering incense. Above is a grand statue of St. James, or (as has been preferred) John the Baptist, sitting in a curule chair that rests upon two lions. Above this image are sculptured capitals, on the faces of which are represented the temptations of Christ; on the side caps of the pier are fiends looking on. On the right face of the central capital Satan is holding stones to be made into bread, our Lord is by his side; in the centre a winged figure of the tempter is pointing to the pinnacle of the temple; on the left is the temptation on the mountain. The inner face represents Christ comforted by attendant angels. The mouldings of the arches are richly decorated by acanthus-leaf work. Under the lintels that support the tympanum of the central arch are angle brackets, with crouching figures of angels on their fronts holding scrolls. The mouldings of the great central arch consist of three square steps or members, one recessed inside the other, with mouldings like those of the smaller arches. Twenty-four figures, small life size, representing the four-and-twenty elders in the Apocalypse, sit on the central member. Each, with the portions of moulding seen between, forms the front of a massive voussoir of the construction. They radiate from the centre of the arch, and sit on the central member of the mouldings. They sit round the subject represented in the tympanum as a council of sages round the walls of a circular chapter-hall. They are crowned and hold musical instruments, some playing, some tuning, some waiting to take their parts in the heavenly concert.

The great object in the centre tympanum is a colossal image of Christ. He is crowned with a crossed nimbus behind His head, and sits on a curule throne. The hands and feet are seen pierced; the hands spread in the attitude traditionary in such representations, indicating the damnation of the wicked and the salvation of the just. Seated around, also on curule chairs, are the four Evangelists writing. Their appropriate emblems,—the eagle, the ox, the angel, and the lion, are assigned to each respectively. On either side are four angels in the same scale. Above the Christ are forty small figures, representing the saints; some who accompany the final advent, some who are then saved. Adoring angels are in attendance. The sculpture of the side arches, and a series of figures on the spandrels between, on various scales, continue the subject. The spandrels contain figures of guardian angels with the souls under their care. The small arch to the right consists of two sets of mouldings similar to those of the centre, but smaller. In the upper set are ten small sitting figures. They hold scrolls, and acanthus-leaves in pairs are folded over between each, the points meeting in an arch shape between the figures. In the lower division are eleven figures. The one in the centre represents our Lord descending to limbo; on either side are Adam and Eve. At the springing of the arch to the right, is an angel blowing a trumpet, and on the opposite side archangels holding saved souls. The left-hand arch continues the same subject. From the springing on the right hand are souls carried to Heaven. One holds a small female figure, representing the soul of a daughter; both are carried by a guardian angel. The keystone is sculptured with a bearded head with crossed nimbus, and below it an angel's head. The small figures on the left half of the moulding represent the damned tormented by fiends, serpents, dragons, and monsters. The subject is continued on the shaft on the outside of the doorway. On the left hand of the arch, where it springs from the pier, is an angel blowing a trumpet, corresponding with the angel in the right-hand arch. The whole of the figures of this doorway, as well as the other sculptured ornamentation, were originally painted in brilliant colours, some traces of which are still remaining.

Notices of other fine examples of Spanish and Spanish moresque, and of Old English, Flemish, French, German, Indian, and Arab work, to be seen in the architectural courts, may be given on another occasion.

THE ROADS AT KING'S-CROSS.

Sir,—Referring to the letter under this heading in your issue of the 13th of September, I ask your permission to offer a few remarks.

Very few of your readers can have surmised that "the roads *at* King's-cross" or that "the subsidence of arch of the railway bridge *at* King's-cross" refers to a *new street* in course of formation about 1,100 ft. (nearly a quarter of a mile) north of King's-cross, and I will take this opportunity of directing the attention of the public to the fact that the Vestry of St. Pancras has succeeded by negotiations that have extended over a series of (seven or eight) years in acquiring for the use of the public a *new thoroughfare* that will be of great service to the public, and relieve to a very great extent the traffic at King's-cross, now one of the most dangerous crossings in the metropolis.

This new thoroughfare extends from Pancras-road, opposite the end of Phœnix-street, to York-road, opposite the end of Wharfdale-road, and will provide the only direct line of east and west communication for the districts,—now separated by the Great Northern Railway Stations,—lying north of the "New-road" between King's-cross and St. Paul's-road,—St. Paul's-road being just one mile from King's-cross. It crosses over the Great Northern Railway Station by means of a viaduct some 210 ft. in length and 40 ft. in width.

The works have been carried out at the cost of the Great Northern Railway Company, in compliance with the provisions of Acts of Parliament, wherein clauses were introduced at the instance of the Vestry of St. Pancras, and in the interests of the public at large.

Considerable difficulties have been encountered in carrying out these works to completion consequent upon the relative levels of the rails of the Great Northern Railway Station, of the roadway and footways of York-road, and of the floor-levels of the houses abutting upon York-road.

You will understand this when I tell you that the footway on the west side of York-road, at a distance of 53 ft. from the *nearest* rail of the station, was only 10 ft. 5 in. above the level of the rail, and that the door-cills of the houses on the east side of York-road, at a distance of 126 ft. from the *nearest* rail of the station, were only 12 ft. 8 in. above the level of this rail, which happens to be the highest rail in the station, and one which of course could not be lowered.

The surface of the roadway on the viaduct, when completed, will be only 16 ft. 6 in. above the level of this rail, so that even then the cill of the houses on the east side of York-road will be 3 ft. 10 in. below the surface of the roadway on the viaduct at a distance of 126 ft. The gradient of the roadway from the viaduct across York-road into Wharfdale-road is about 1 in 30, and the footways are so laid as to prevent rain running into the houses.

Your correspondent, Mr. John Eldridge, thinks "the gradients over this bridge must be very trying to cattle," but the gradient would have been much more trying (because it would have been steeper) if the expedient of "channels on the pavement" had not been adopted.

To obtain the gradient of 1 in 30 from the viaduct into Wharfdale-road, it was, of course, necessary to raise the level of York-road itself (the footway of which on the east side, you will have noticed, being only 10 ft. 4 in. above the station-rail, and 6 ft. 2 in. below the surface of the roadway on the viaduct), and the raising of the roadway has been gradually effected from King's-cross so as to make the ascent as easy as possible, the steepest gradient in the length of 1,100 ft. being 1 in 66.

The raising of the roadway has also been effected where practicable between Wharfdale-road and the Regent's Canal Bridge, the gradient of the bridge-approach being improved from 1 in 17 to 1 in 21. In fact, the road has been improved to the greatest practicable extent.

If, as your correspondent suggests, the thickness of the bridge could have been reduced to half the thickness by his "or any other plan" (as he says) the gradient from the viaduct to Wharfdale-road would *not* have been improved unless the "channels on the pavement" had been retained, and even then the gradient of York-road from Wharfdale-road to the Canal Bridge would have been made steeper.

But I am informed that the cross-girders of the bridge could *not* have been reduced in depth, and therefore the bridge could not be reduced in thickness. The engineers who designed the bridge have gone to the extreme limit justifiable for the very purpose of saving depth in the cross-girders.

The suggestion of dividing the bridge into a double thoroughfare, even if it could ever have been entertained, comes too late.

The railway company was to provide a thoroughfare (including footways) 40 ft. in width, and an agreement was entered into to that effect years ago.

That you may be in possession of the views of the Vestry on the subject, I beg to append to this an extract from the proceedings of the vestry of the 17th instant:—

"At a Vestry Meeting held on Wednesday, the 17th of September, 1873, the following report from the Highways, Sewers, and Public Works Committee was read, viz.:—

That in pursuance of reference by the Vestry of the 30th of July last your Committee have taken into consideration the questions comprised in the Vestry's resolution of that date on the subject of the levels of the bridge in Battle Bridge-road, and of the roadway of York-road, your Committee inspected the bridge and York-road (Maiden-lane), from King's-cross to the Regent's Canal Bridge, and it was observed that a considerable diminution in the gradient from the canal bridge had been effected in the execution of the paving works. Your Committee found that due provision had been made for surface drainage where the improved level of the road had rendered necessary certain alterations in the falls of the footways, and your Committee arrived at the opinion that the works had been executed satisfactorily, and in the manner most likely to be beneficial to the public. Your Committee consulted the solicitor, as directed by the Vestry, and have the pleasure to submit the following report:—

'Solicitor's Office, 21st August, 1873.

Great Northern Railway Bridge.

My dear Sir,—I have duly considered this reference, and have to report,—

1. That the mode of constructing the bridge is subject to the approval of the Board of Trade, but that the company must construct it in the direction and of the width, &c., laid down on the plans agreed to with the Vestry; and the Vestry have no control over the level, which is necessarily governed by the head-room required by the engines.
2. That the company must always maintain it at their expense.
3. That the parish will not incur any costs in reference to the repairs.
4. That Mr. Scott's view, as expressed in the memorandum supplied to the chairman, appears to me to be quite correct.

(Signed) Wm. Durrant Cooper.

Chas. Worrell, Esq.'

Resolved, that the report be approved."

Henry North,
Chairman of the Highways, Sewers, and Public Works Committee.

Archæological Discoveries at St. Bartholemew's Chapel, Rochester.—In clearing away the old houses adjoining St. Bartholomew's chapel in the High-street, the site of the ancient hospital for lepers, founded by Bishop Gundulph, has been discovered. The building was close to the southern side of the existing chapel. Close to the southern side are arched recesses, believed to be for the beds occupied by the lepers, whilst above are square openings in the chapel wall, conjectured to have been made to allow of the patients hearing the service in the chapel, in which they would not be permitted to take part. The arched recesses had been converted into fireplaces. A portion of the original plastering of the outer wall has been brought to light, with colours still to be traced on the plaster, showing the building to have been erected, as is known was the case, soon after the Norman conquest.

PROGRESS IN EDINBURGH.

Building operations have not been active in this city during the past season, still something has been done towards adding to the architecture of the city a few features which go to make up additional picturesque effects rather than anything remarkable for beauty of detail, far less grandeur of effect.

The elevations of St. Giles-street are now completed and form a marked feature in the outline of the old town as seen from Princes-street. The Scottish domestic style has in this instance been treated with more simplicity than in other recent examples here. The great height of the buildings, and the grouping of gables, dormers, and chimney-shafts produce an effective sky-line, and the elevations of the different blocks are sufficiently varied to avoid monotony without a too obvious effort at variety.

The site of the old city poorhouse is now fully occupied. The same style has been adopted as in St. Giles-street, but with varying results. The most conspicuous object in the group is the Odd Fellows' hall, and odd it undoubtedly is. It cannot be said to be of any particular style, but is a mixture of several; emblematical sculpture and heraldic devices are profusely scattered over the wall surfaces in such a manner as to make it a work *sui generis*, and far from being tame or commonplace—in short, it is odd, and so appropriate to its purpose.

The mason's work of the medical portion of the new infirmary is nearly completed—one of the pavilions wholly so. When the whole is finished, and the circular towers flanking the ends of the several pavilions, are crowned by their conical roofs, which will be seen overtopping the trees of the Meadow Park, a noteworthy group will be formed.

The City Improvement Trust proceed very slowly, the result probably of the officials being remunerated by salaries, which cease with the completion of the works. The Mechanics' Institute stands alone in Chambers-street; the roadway is still in a state of chaos, and no other building has been commenced. A commencement has been made at the southern extremity of Jeffrey-street; the same pencil is traceable in the designs as in St. Mary-street, but the detail is slightly varied.

In the new town we observe that the two westmost houses in Princes-street, have been partially demolished, and are being tinkered up in a rough manner, with the apparent object of cement decorations being used; the reconstructed building is to be used as a hotel.

Preparations are being made in Charlotte-square for the reception of the Albert memorial. The sculptor, in this instance, appears to be of somewhat the same character as his brother artist, to whom has been entrusted the Wellington monument in St. Paul's.

At the west end new streets and terraces are in progress; the only attempt to vary the prevailing monotony in that quarter which has come under our notice, is the introduction of semicircular-headed windows on the first floor.

Workmen are busy excavating for the foundations of the new cathedral. We understand that the estimates for the erection of the work considerably exceed those of the architect, and that it has been resolved not to proceed with the erection of the towers in the meantime. Within a stone's throw of the cathedral site preparations are in progress for the erection of a Presbyterian Church of considerable dimensions, which is to be Classical in style. The new Free Church at Morningside is being roofed in. It is a small Gothic edifice, and in its present aspect appears thin and ineffective. A spire is being added to the Libberton Free Church, which, from its elevated position, will be seen to a considerable distance.

At Cross Causeway a small church is to be built for the Evangelical Union.

On the Libberton-road an asylum for blind women is to be erected. It is not to be a mere barrack, but an ornamental effect is to be aimed at without incurring much expense.

The new barracks on the Castle Hill stand unaltered in all their hideous deformity; something is, however, to be done to make them more attractive; but really satisfactory they never can be.

New County Court for Halifax.—The new county court for Halifax, built at a cost of about 8,000*l*., from the designs of Mr. Sorby, was opened last week. The style is Classical.

TECHNICAL EDUCATION.

BY A JOINER.

That passage of Macaulay's which tells us that "the traveller from New Zealand shall one day stand upon a broken arch of London Bridge to sketch the ruins of St. Paul's" is frequently quoted nowadays, both by foreigners who would like to see England humbled to the dust, and native alarmers of every shade of politics and every degree of education. The former perceive the beginning of her downfall in every Continental murmur that bears the smallest resemblance to a slight, and every Transatlantic blustering boast, which, after all, is but the "bark that's worse than the bite." Some of the latter see the approaches of her decay in the fal-dal fineries and startling head-dresses of her daughters, and others in the frequency of strikes and demonstrations of the democratic element, which is said to be growing so powerful. Until the New Zealander comes with his pencil and sketch-book we must remain in doubt concerning the prophecy quoted above; and, while we leave Continental and Transatlantic matters to diplomatic statesmen, let us smile in passing at those who cannot warm to a woman in any dress, and view as best we can the relation which the last remark bears to the present subject.

"A little learning is a dangerous thing," says Pope, and the calm impartial student of passing events cannot fail to see that in the half-digested ideas and crude arguments of many democratic leaders lies England's greatest danger. What is the remedy? Make the little learning more, and begin at the beginning. Since the application of steam as a motive power for the production of almost every commodity required by man, everything seems to be wanted in a hurry, and for smart, intelligent workmen of every craft a continual increasing demand is plainly observable. But in nearly every calling thoroughness has been hitherto sacrificed to the impatience of customers, and we seem to become the more pressing the quicker we are served. The consequence is, that the mechanical arts are cut up into branches, and the artizan who should know all about his business is made a mere expert at one particular part. Whatever a workman is quickest at, like a machine, that he is kept to; and as long as he earns a living by that one thing it is ten to one if he ever seeks to know any more. Were he compelled to turn his hand to other parts of his business, he would have to occupy his mind in a useful way, in order to qualify himself for the performance of the task by which he earned his daily bread. But this being secured to him without much brain-work, he is the more easily led into idle pastimes, in which he often indulges to excess. His comparative prosperity makes him consequential. The sentiments which he picks up at low music-halls and other kindred places of amusement, and the ideas gathered from cheap literature and newspaper-read companions, fire his imagination, feed his vanity, and make him the easy-persuaded tool of cunning knaves, who get a living by his duplicity. His knowledge is so scant he cannot see through the shallowness of the notions of those with whom, principally on account of his superficial attainments, he is forced to associate. Had this "one-branch hand,"—this mechanical expert at one particular part of his trade,—been brought up to thoroughness, he would have more to occupy his mind, and consequently less time to squander in taps and gaming-houses. If he were made to feel that on the completeness of his abilities depended the bread which he is in the habit of earning by the repetition of a mere mechanical performance, which through constant practice becomes of no trouble to him, his mind would receive a new stimulant with each different job, and study would be the result.

Being thus compelled to seek for information, his mind would be led into the paths of true knowledge in the search, and, once fairly started on that road, he would not be long until he could discern sound argument from bombast. There is much talk at present about technical education; but before the attainment of it will bear any fruit, the system of parcelling out must be changed. When a boy is apprenticed to the tailoring trade, if he prove any way smart at making a vest, he will never get the chance of making trousers; and if he be quick at the latter, he will never be asked to put a stitch in a coat. What is the use of teaching the theory of any trade in schools with such a practice in existence.

In the building trade, we have masons or stone-cutters who are not expected to set the stone they have wrought, wallers who turn no arches, bricklayers who dress or set no stones, and hundreds who could not read a drawing or get out a mould by which to work. Amongst those who are called joiners, we have men who make sashes they could not hang, and who never saw a "mouse" in their lives. We have "fixers" who, as a rule, make nothing they put up, and "framers" who would not be able to perceive the same angle in two different positions. We have "staircase hands" who affect to despise everything else connected with the construction of a building, and who, as a rule, look upon themselves as gods of wood, although they never made a circular-headed sash in the whole course of their existence. Well-planned houses suffer in their erection through this practice; for the "bench hand" who has been kept for a number of years at what he can do quickest is often necessitated to turn in with a crowd of "fixers" and scrape away as best he can.

Considering the present system, it would appear that with most builders profit alone is the alpha and omega of every undertaking. It looks as if they do not care whether a house stands or falls after it has been built, and their gains counted into the bank. Very few have any consideration for the welfare of those whom they employ, and consequently there is little or no reciprocation. The workshop, which ought to be conducted on the principle of a school where technical instruction is imparted, as well as for the fabrication of an article which brings a profit, is very often superintended by a man chosen more for his driving qualities than for his information. It is seldom that a man capable of imparting what he knows is met with in such positions, and the generality of men in charge are cross and intemperate in their language, instead of being kind and considerate. As to receiving instruction, men are left very much to themselves to pick up that which they would sooner and better understand if explained by a man competent to do so. The language used by the generality of foremen too is very often the most abusive and sometimes revolting, such as no man aspiring to a respectable position in society should be heard giving utterance to. The susceptible dull youth of one-and-twenty is sneered at if he chance to ask the foreman a question concerning his work, and mulcted out of money, or wheedled into paying for beer, for the information which he receives from his older fellow. Capitalists should look after these practices, and apply a remedy, for one or two hours' prefatory instruction or forethought often saves a great amount of labour. Those who cannot see before them lose much time groping their way, and obviously the loss is to the employer. I have often heard it said that the workers are not expected to be thinkers. In fact, I have many times heard the remark, "You are paid for working, sir, not for thinking," addressed as a reprimand to those who gave such a reason for being caught, as the man in charge might suppose, wasting his employer's time. This, too, without the least inquiry concerning the truth of the assertion. The result of this system is that men who would otherwise seek to become intelligent and useful in a general sense lay down their minds to become expert at one or two things, and in many cases sharp alone at what is called "shaping," that is by their bustling about and wielding their tools juggler fashion, make people believe they are qualified for anything. To be sure this kind of tact shows a knowledge of human nature on the part of the person who employs it, and the present system is the chief cause that leads many to resort to it; but it also shows the weakness, superficialness, perhaps vanity, of those who are the victims. For the truth of this I will ask if the reader ever met with one who could get on well by flattering those in power—often better by this means than real usefulness?

If it were the practice that the foreman were bound to call his apprentices and men together once or twice a week, say for an hour, or even half an hour at a time, and give them a lecture during working hours upon some technical subject, I am sure hundreds would be very thankful and willing to subscribe to the expense. After working hours very many men do not like attending lecture-halls for such a purpose, and they would be more at home in a class got up specially for themselves, and particularly when it would be taught where every practical appliance necessary for demonstration was close at hand. I will support this suggestion by calling attention

to the fact that in hundreds of instances men's ntellects do not begin to develop properly until they are well into the cares of a family, so that such a practice would be to those of the greatest assistance. It would stir them up and awaken their curiosity, and besides if advancement were to be had by attending the class all would be ambitious to learn. It would, furthermore, have the effect of bringing to the surface many men of retiring manners, though still worthy and competent to fill a leading position. The great fault of the present system is employers do not trust their men enough. They do not go frequently amongst them with an encouraging word, and that friendly and paternal feeling which suits well the bearing of an extensive contractor. Recognition even in a small way goes far to encourage a humble man, and an expression of satisfaction from one's employer causes invariably much gratification. He who is in the habit of expressing himself satisfied, let his profits be ever so great, is hard to be found; and there are hundreds who could not speak civilly to their *employés* for a wager.

There is little or no friendly feeling existing between man and master on account of the present system of management, and trade-unions flourish in consequence. I have yet to say a few words on this subject from a national point of view, but knowing that long-winded compositions weary most readers I shall reserve them for a future paper.

TECHNICAL EDUCATION AND THE ARTIZAN.

Sir,—Your correspondent of September 20th, signing himself a "Carpenter," puts me in mind of a wayward child, who, because he cannot do as he would like, commences crying or abusing those that correct him. He also appears rather conceited, and one of those troublesome individuals I have sometimes met with in the workshop and elsewhere, who fancy there is no one as clever as themselves, and every one else is wrong.

He says he is a marked man because he is better educated than his fellow-workmen; but probably he is continually running about the shop expounding those theories upon which he seems to lay so much stress, at his master's expense, and getting up discussions on his pet theories instead of minding his work.

I do not find fault with him for endeavouring to improve his fellow-workmen; but there is a time for everything, and if "Carpenter" feels so anxious to instruct them I should think he might find time in the evenings to do so. And if the offer was made to them in a proper spirit, I feel certain they would not reject it.

He also states that he had once the courage to apply for a situation as clerk of works, but his services were rejected because he worked at the bench. Probably the architect to whom he applied had some experience of bench hands before; for "Carpenter" should know that a man competent to act as clerk of works should have a general knowledge of the building trade, and it is from the want of this general knowledge that we meet with so many incompetent clerks of works.

I may here state that I am a student under the Science and Art Department, and have obtained two first-class certificates and Queen's prizes, but I have endeavoured to apply the knowledge which I have gained to my own advancement, as well as for the benefit of my fellow-workmen. I have also found that that knowledge has gained for me the respect of my fellows.

I hope you will excuse the length of this letter, but I could not refrain from answering "Carpenter's" letter, as I think it might have a tendency to deter others from joining the Science classes, and thereby lose one thing most essential to an artizan, "a technical education."

I would urge upon my fellow-workmen the importance of a technical knowledge of their various trades, as it will make them superior as artizans and respected as men.

Frank Chessell, Joiner.

Society of Engineers.—The first meeting of this Society for the session 1873–4 will be held on Monday, the 6th of October, when a paper will be read on "Recent Improvements in Pumping Engines for Mines," by Mr. Henry Davey.

FROGMORE, NEAR ST. ALBAN'S.

The schools here were formally opened last week after being added to and generally remodelled. The infants'-room, 20 ft. by 19 ft., has a gallery for forty-four children, and benches for a few of the older infants. The general schoolroom is so arranged that by means of sliding doors a portion, 14 ft. by 19 ft., can be cut off for a couple of classes. New cloak-rooms, with washing spaces and porches for each sex, and the necessary closets, &c.,—on a modification of the earth system,—have been provided. The buildings are of brick, with tiled roofs and wood corbelled gables;—the bell gable having parish and other monograms and date in sgraffito. Windows are introduced for cross ventilation: on the west side, opposite the children's desks, the space above the level of 9 ft. from the floor being almost all window for between 5 ft. and 6 ft. in height.

The warming is by ventilating stoves supplied by Messrs. Edwards & Son, of Great Marlborough-street. The total cost has been a little over 5*l.* per head for each additional scholar provided for.

Messrs. Clarkson, of London and St. Alban's, were the architects; and Mr. G. Boff, of Park-street, was the builder employed.

THE OLD "ANGEL" INN AT ST. GILES'S.

A memorial of ancient London is about to pass away—a memorial which is as illustrious as the "Tabard" Inn in Southwark, though that was famous for the grace of its poetical associations, and this notorious from the odium of its infamy. We allude to the hostelry which has long been known as the "half-way house" on the road to Tyburn—the house at which Jack Ketch and the criminal who was about to expiate his offences on the scaffold were wont to stop on their way to the gallows, for a "last glass." Here Jack Sheppard halted, as has been recorded by Harrison Ainsworth in his life of the celebrated scoundrel, and taking a sup of his parting wine cup "smiled," and cried, "Give the remainder to Jonathan Wild." Mr. William Thomas Purkiss, the present proprietor of the premises, has, at the request of several eminent archæologists, been prevailed upon to stay the work of demolition for a while, so that those who desire to see the veritable remains of the old "Angel" Inn as it stood when St. Giles was really in the fields—when old "Holbourne" was nothing but a country lane—and when the "fast coaches" of that time started from the "Angel" on their several days' journey to the north—may have an opportunity of looking upon, ere they are consigned to the rubbish-cart, the quaint old galleries at the back of the premises, and the remains of the ancient "tap" from which the most notable criminal of yore ordered his "parting cup," and drank perdition to all thief-catchers.

ST. MATTHEW'S CHURCH, LIGHTCLIFFE.

ACCIDENT AT STONE-LAYING.

The corner-stone of St. Matthew's Church, Lightcliffe, near Halifax, has been laid. A sad accident occurred at the ceremony, by which eight people were injured. The stone itself had been raised in order that the mortar might be spread, when a snapping of iron was heard. At the same moment the crane heeled over, and fell amongst the people. The weight of the stone had caused the cast iron to which the beam was fixed to snap. The iron was about ¾ in. thick. The crane was calculated to raise a ton and a half, whilst the corner-stone weighed only about three-quarters of a ton. It had raised the stone three or four times before. The falling of the beam caused great consternation, and three persons were unable to get from beneath it until it had been raised. It was found that eight persons had been hurt, some of them seriously. After the lapse of half an hour the stone was hurriedly laid by Mrs. Foster, and the proceedings were brought to a close as quickly as possible.

Major Foster, of Cliff-hill, generously made an offer to build the church at his own cost, leaving to his fellow-churchmen the duty and privilege of providing the organ, bells, &c. The site was at once chosen. It is in a corner of Major Foster's own park, and close to the Halifax and Wakefield turnpike-road, about a quarter of a mile from Lightcliffe Station, being considerably nearer to the bulk of the population of Lightcliffe and Hipperholme than the present church. Mr. W. S. Barber, of Halifax, is the architect. The church will be in the Perpendicular style, and the ground-plan will give the nave, aisles, chancel, with side-aisles and organ-chapel, and sacristies on the north, baptistery opening from the second bay on the south, and north-west tower. The nave, in five bays, is to be 71 ft. 3 in. long, and 23 ft. 9 in. wide; width of aisle, 9 ft. 9 in.; and depth of chancel, 23 ft. 6 in. The tower, which is 12 ft. square, rises to a height of 74 ft., and has an octagonal turret at its north-west corner. It is in four stages, the first having a two-light window facing the west, and the entrance-door (which has a richly-carved niche over it) on the north face. The belfry stage will have coupled two-light windows on each face. It is to hold a peal of eight heavy bells. The great west window is to be a four-light one, with tracery in harmony with the style. The south front will have a range of clearstory-lights (five coupled two-lights). The windows to the aisles are three-light and two-light ones. On the south side the baptistery is to be 12 ft. by 8 ft., and lighted by two-light windows. The chancel, which is three steps higher than the nave, has choir-stalls and clergy-seats on either side. Three other steps finish the east end, and form the altar footpace. The east window is in five lights, with head tracery. All the floors will be laid in encaustic tile-work. The roofs are open-timbered, that to the chancel having a carved cornice. The shafts to the nave-arches are octagonal, with flowers carved on the capitals.

The contracts for the building were let some months ago, and considerable progress has already been made with the work. The masons are Messrs. L. & W. Crowther, of Rastrick; carpenter and joiner, Mr. J. Christy, of Huddersfield; plumber and glazier, Mr. R. P. Stafford, of Halifax; slaters and plasterers, Messrs. A. Bancroft & Son, Halifax. The carving will be executed by Mr. Charles Manver, and the whole work carried out under the supervision of Mr. Ridgway, of London, who acted as clerk of the works in the erection of St. Mary's Church, Luddenden Foot.

HEALTHY HOMES.

Sir,—I thank you for permitting the question of cheap ventilation to be discussed in your valuable and useful paper.

Cheap and dear are relative terms, and not easily settled by discussion in any paper. My object has been to press upon the notice of scientific and practical men the grave importance of affording to poor families, huddled together night and day in single apartments, and continuously breathing a contaminated and poisoned atmosphere, some ready and cheap expedient by which their very existence might be ameliorated, and the present amount of sickness, expecially amongst women and children, who are the greatest sufferers, diminished. For myself, I thank your correspondents who have been good enough to offer me suggestions, and I beg now to inform them that, if any one will send me an estimate for thoroughly ventilating my two buildings at a moderate cost, I will gladly give them a fair trial.

Any communication to my agent, Mr. Deller, 1, Willow-terrace, White Horse-road, Croydon, will be acknowledged. Amateur.

SCHOOLS OF SCIENCE AND OF ART.

A School of Art and Science at Brighton.—A meeting was held at Brighton on Saturday, to further the erection of a school of art and science there. The cost is to be about 5,000*l.* Many liberal donations have been made, and there is a fair prospect of success.

Maidstone Science Classes.—The annual distribution of prizes to members of the science classes in connexion with the Maidstone Working Men's Club, who have successfully passed the Government examinations in the subjects which they have been studying under Mr. Thornhill, took place in the Concert Hall of the Corn Exchange, when the chair was occupied by the Mayor, who, in his opening address, said he was glad to find the classes were in such a flourishing condition. They had been established three years, and the number of students had increased from eleven in the first year to thirty-five in the second, and to sixty in this year, and out of

the sixty, forty-three were examined, and forty passed successfully. After referring to the benefit the classes were to the town, and to the importance of promoting their interests as much as possible, he called on Mr. Thornhill, who read the report. Sir John Lubbock distributed the Queen's prizes, local prizes, and certificates to the successful students.

School of Science and Art, Keighley.—The distribution of prizes won at the recent examination by students attending the Science and Art and Trade Schools at Keighley, took place under unusually auspicious circumstances. In one of the upper rooms of the building were exhibited the students' drawings done during the year. In addition to the prizes awarded by the South Kensington Department, there was a host of local prizes, amounting in the aggregate to several hundreds awarded, which made up a list of the value of about 50*l*. The visit of so many distinguished visitors to Bradford in connexion with the British Association, had suggested the idea of getting one or other of these celebrities to present the prizes at this school, which, as well as the Mechanics' Institute, in connexion with which the schools are conducted, has attracted considerable attention amongst those who take an interest in higher education. Professor A. W. Williamson, the president of the British Association, presented the prizes. The hall was crowded, and many were unable to obtain admission. Mr. Isaac Holden occupied the chair.

Liverpool School of Science.—The twelfth annual meeting of the Liverpool School of Science, in connexion with the Department of Science and Art, has been held in the small concert-room, St. George's Hall, under the presidency of Mr. J. A. Picton. Dr. Williamson, professor of chemistry, University College, London, and president of the British Association, delivered an address and distributed the prizes, so that more than usual interest was taken in the proceedings by those present, but the attendance was not nearly as large as might have been expected.

School of Art, Durham.—On Friday, Sept. 26th, the pupils of this school presented Mr. C. H. Newton with a silver tea service, in recognition of his services as head master for the last twenty years. The testimonial was subscribed to by about 150 pupils, who at various times have been so ably instructed by Mr. Newton.

THE DRAINAGE OF MARGATE.

We observe with satisfaction that the Council of the borough of Margate have at length decided upon making some serious progress in the direction of draining their healthy and attractive town. Plans and estimates for this purpose are called for, and premiums amounting to 300*l*. are to be offered to those competitors whose plans are approved. It has been resolved to invite engineers of experience in this particular department who are willing to enter a limited competition to send in their names to the town clerk, and from the list of names submitted, the council propose to select ten competitors, to whom the above premiums will be offered. We shall have further observations to make on the matter; meantime, those likely to be interested are referred to our advertisement columns.

OPENING OF LONDON SCHOOL-BOARD SCHOOLS.

DEPTFORD.

Yesterday (Friday) afternoon, two new schools, the first built by the Board for the instruction of the children of Deptford, were publicly opened by an interesting ceremonial. These schools, concerning which some particulars were given in the *Builder* a few weeks since, are situated, one in Creek-road, and the other in Clifton-road, and are each designed to accommodate about 800 young people, who are classified as boys, girls, infants, and babies. The ceremony yesterday consisted mainly of massing the children that are to occupy the two new buildings, and marching them from Creek-road school to Clifton-road, by way of High-street, Deptford, and New Cross-road. The children numbered at the end of the procession about 1,600, these being made up of the three divisions of each of the two schools. They were not all able, however, to take part in the procession, the contingents of infants and babies being in some instances taken up in course of the route, and others joining at Clifton-road. The proceedings excited very lively interest in the locality. The grand gathering was in the Infant School-room of the Clifton-road-buildings, Mr. T. W. Marchant presiding. There was a large attendance of ladies and gentlemen interested in popular education, including the Greenwich members of the London School Board, the members of Divisional Committee, and other well-known although unofficial persons. The children sang a number of simple pieces with pleasing effect, and very well together, considering that combined rehearsal had been impossible.

The Creek-road Schools, the first built from the designs of Mr. E. R. Robson, the Board's architect, come out well now that they are finished. The principal schoolrooms are very commodious, the boys and girls having each principal rooms 56 ft. by 22 ft., and two class-rooms 24 ft. 6 in. by 22 ft., and 22 ft. by 18 ft. 6 in. The infants' school is 40 ft. by 26 ft. 6 in.; infants' class-room, 26 ft. 6 in. square; the babies' room is 30 ft. by 26 ft. 6 in. The playgrounds, covered and open, are admirably arranged, the infants and babies having a spacious square with as much of the area covered as open. The covering is by light iron roofs and corrugated galvanised iron. The playgrounds are floored with asphalte, and each of the divisions has abundant accommodation in lavatories, closets, &c. The passages and stair-cases of the principal building are coated with silicate paint. The dado in the schoolrooms is of Keene's cement, which furnishes an excellent smooth hard surface. The walls over the bold bead that surmounts the dado are coloured in distemper upon the unplastered brickwork. The fireplaces are fitted with effective stoves, designed by Mr. Robson, that are likely to prove very efficient for warming and ventilation.

The Clifton-road schools, although more imposing in external appearance, do not compare favourably with the buildings in the Creek-road. The principal school-rooms for boys and girls are each 38 ft. 5 in. by 21 ft. 6 in. Each division having also two class-rooms, 37 ft. 3 in. by 20 ft., and 27 ft. 3 in. by 20 ft. The infants have a very fine room with open-timbered roof and boarded ceiling, stained and varnished. This fine hall is 60 ft. by 38 ft., and has a fixed gallery across the end, the intended uses of which are not quite apparent. In addition to the large room the infants have a class-room, 28 ft. by 18 ft. The babies have also a room, 28 ft. by 18 ft., and in these buildings the anomaly comes out of floor-space of 365 square yards being devoted to infants and babies, and only 231 square yards to boys and girls respectively. The new building is not equal to the accommodation of the boys that are even now receiving instruction in the premises temporarily occupied by the School Board. The temporary premises will continue to be partially occupied by the Board until the new schools at Hatcham are completed, which will accommodate a number of the boys now attending the New-cross Board School. Notwithstanding this prospective relief, we think it is to be deplored that more liberal space was not taken for the accommodation of boys and girls in the new schools, and the more that the ground available for building purposes was practically unlimited.

The dado of the Clifton-road rooms is of deal, the upper portion of the internal walls being the brickwork in distemper. The rooms are fitted with Mr. Robson's heating-stoves. The under portions of the windows are fitted with frames filled with perforated zinc, and the upper portion with a hinged hopper arrangement, by which they may be opened without the possibility of down-draught. The work in all departments throughout is of the best character.

HOLLOWAY.

An addition has been made to the educational resources of the metropolis in the Finsbury division of the London School Board. The new schools are situated in the Cottenham-road, Holloway, and are adapted for the accommodation of 920 children, viz., 360 boys, 240 girls, and 320 infants. The site, which covers three-quarters of an acre, was purchased by the School Board at the moderate figure of 500*l*., and the total cost of the building, site included, has been 7,100*l*. There are two entrances, one for the boys and the other for the girls and infants, and the extensive space between the building and the road has been utilised as playgrounds for the children, being paved with asphalte, and that devoted to the infants being partially covered in, as a protection from the rain. The infant schools are situated at the base of the building, the boys' school being on the first-floor, and the girls at the top, and by an arrangement of sliding screens the classes are separated each from the other, so that the noise attendant on the instruction of one does not interfere with the conduct of those in its neighbourhood, while glass panels enable the head-teachers to supervise their assistants. The schools are fitted throughout with every convenience, but, at the same time, no unnecessary expenditure has been incurred. The building stands a little back from the road, the playgrounds being in front, which will prevent the studies of the children from being interrupted by the noise of the passing traffic. The style of architecture is modified Gothic. The architect was Mr. L. Ridge, and the builders were Messrs. Scrivener & White.

THE MAUSOLEUM AT SALTAIRE.

The sculptor, Mr. John Adams Acton, who has been working on the statue of Sir Titus Salt which is to stand in front of the new town-hall, Bradford, is now superintending the erection of three mural monuments in the family mausoleum at Saltaire. The principal monument is of large dimensions, and executed in the most costly marbles. The pediment, frieze, pilasters, and base are worked in the best quality of Sicilian. In the centre of the pediment is the emblem of the Spirit, in the form of a dove descending with the olive branch; this is produced in the whitest Carrara, and favourably contrasts with the bluish tint of the Sicilian. On the frieze are cut, in relief, from the solid marble, the words, "Blessed are the dead which die in the Lord." The pilasters are worked with the lily, the passion-flower, and the poppy, entwining together from the base to the capitals, which are enriched with foliage surrounding the flowers. The centre of the monument consists of a semi-colossal figure, in bold relief, representing the Angel of the Resurrection standing with the trumpet in the left hand, as awaiting the command to call forth the world to judgment. This figure is merely at present a representation in plaster of the model which is now being executed in the artist's studio in London, in the finest Carrara marble. The base for the future inscription is worked in Sicilian and Rosso Antico. The idea of the artist has been to illustrate Life, Death, and Immortality. The side tablets are in commemoration of the deceased members of the family. These tablets, like the large one, are of the finest Italian marbles. The arms of Sir Titus Salt are sculptured on each sarcophagus.

THE WARWICK WATER SUPPLY.

The Haseley water-supply scheme has at length passed through the stage of inquiry and discussion. It has been subjected to a protracted and laborious scrutiny. During this process all the material facts on which it is based have undergone a searching examination, both friendly and hostile. The information by Messrs. Rammell & Lister would seem to confirm the opinion arrived at, after much care and labour, by Mr. Pritchard, C.E., the borough surveyor, and endorsed by Messrs. Cawley & Newton. When the scheme was first propounded, opinions were confidently expressed that the supply of water obtainable from Haseley would not suffice for the requirements of the inhabitants. To determine this question Mr. Pritchard was instructed to institute a series of gaugings. The results, as reported to the town council, from time to time, during the last two years, appear to justify the council in adopting Mr. Pritchard's conclusion respecting the adequacy of the supply which the Haseley brook will be able to furnish. With a catchment area of 1,500 acres a minimum flow of 150,000 gallons per diem, and storage room for 23,000,000 gallons, there is every reason, it seems, to believe that the required 25 gallons per head for a population of 11,000 will be secured, even in the driest seasons.

The evidence which has been obtained respecting the quality of the Haseley water is equally satisfactory. Analyses have been made by Messrs. Rammell and Lister, and by Dr. Hill, of Birmingham, and these gentlemen agree in pronouncing it admirably suited for domestic purposes. Last year Dr. Hill reported that the unfiltered Haseley water submitted to his examination was about of the same quality

as the filtered water then supplied to the town of Birmingham, and considerably better than the filtered water of the Avon.

As regards the question of cost, there is room to hope that little if any additional yearly expenditure will have to be defrayed. In a report made to the council in March last by Mr. Pritchard, as engineer, the entire cost of the works, after allowing for the value of pipes and old materials to be dispensed with, but not including the Emscote works, was estimated at 15,000*l.*, or an entire annual cost (at 3½ per cent. for fifty years) of 770*l.*, including repayment of principal and interest, payment of rates, &c., and also the working expenses and repairs in connexion with the works.

MANCHESTER AND SALFORD BUILDING TRADES' INSTITUTE.

The annual meeting of the Manchester and Salford Building Trades' Institute for Technical Education has been held in the Free School, Jackson's-row, Deansgate. Mr. J. Murgatroyd, president, occupied the chair. There was a good attendance of members.

Mr. James Maclean read the fifth annual report, which congratulated the members and friends on the continued prosperity of the Institute, as evidenced not merely by the number of students who had attended the classes, but by the results of the examinations of the Government Science and Art Department, and by the competitions for the prizes presented by the Manchester Society of Architects. The number of students on the books for the year ending June, 1872, was ninety-eight, and the marks of distinction earned by them were twenty-three, while in the year ending June, 1873, the number of students was eighty-eight, and the marks earned by them forty-seven. The balance-sheet of the Institute showed that the income had been sufficient to meet the expenses. A considerable portion of the teacher's income, however, was derived from the Science and Art Department. The committee strongly represented to master builders the ultimate advantage that must result to the building trade by the mental training to the rising generation of workmen by the Institute, and requested them to follow the example set by some, who send their apprentices, and pay their fees. They also threw out the suggestion that some advantage in point of wages might beneficially attend the successful passing of the Government examinations, or securing one of the other prizes offered for competition. The report and balance-sheet were adopted.

FAILURE IN PORTLAND CEMENT.

Sir,—Can you or any of your readers inform me as to the cause of the failure in the Portland cement work that has been executed this year externally? Is it the fault of the manufacture or in the workmanship? If the latter, the remedy; if the former, who is responsible for the re-instatement of the work?—Yours, obediently,

A Sufferer.

*** The failure, in numerous cases, is certain; and we shall be glad to have some explanation.

THE WALLACE MEMORIAL.

Sir,—I cannot sufficiently express my gratitude to you for the kindness with which, during many years, you have noticed my various works in glass painting, as also the notice I find in the number of the *Builder* for Sept. 20 of the memorial window to Sir William Wallace, of Elderslee, executed by me for the Glasgow St. Andrew's Club, and placed in Paisley Abbey, in the immediate neighbourhood of the hero's birthplace. I feel sorry, however, to find that, in adverting to some verses recited by me on the occasion of the presentation of the memorial, you quoted as mine a modernised verse from Blind Harry ye Minstrel, who lived 400 years ago. You will see by a copy of the verses enclosed that the one is given within inverted commas, and the minstrel's name quoted at bottom. I trust, therefore, you will put me right with your readers, either by giving the poem entire, or stating the mistake that has unintentionally been made. My admiration for Wallace is as a hero who fought and died for his country's freedom. At Blind Harry's time the feuds and bitternesses between the North and South were endless,—a state of matters now, thank Heaven, for ever changed.

James Ballantine.

*** The mistake was not ours: in the report sent us (*Glasgow Herald*, Sept. 12th) there was no note, and no minstrel's name given besides Mr. Ballantine's own.

Clapham Junction.—Mr. F. D. Banister, the engineer to the Brightan Railway Company, has planned extensive works to be carried out almost immediately at Clapham Junction. Provision is made for new offices, waiting-rooms, gallery, foot-bridge, and the contracts are about to be issued.

CHURCH-BUILDING NEWS.

Hoxton.—The new church, dedicated to St. Mary, in Britannia-street, Hoxton, has been consecrated by the Bishop of London. It stands in the midst of a poor and densely-populated neighbourhood, in which there has hitherto been a sad dearth of church accommodation. The total cost of the building has been between 7,000*l.* and 8,000*l.* The church was built by the Ecclesiastical Commissioners, the cost being defrayed out of the proceeds of the sale of one of the City churches. It is built principally of red brick, in a modification of the Italian style, and is capable of accommodating about 400 sitters. With the exception of the ceiling of the apse, on which a good deal of colouring and gilding has been lavished, the church is almost destitute of decoration, and the red brick walls of the interior do not present a very attractive appearance. It is, however, well lighted by means of large side windows, an east window, and eight windows in the apse, and can be heated in winter by means of hot-air apparatus. The architect was Mr. Ewan Christian, of Whitehall-place; and the builders were Messrs. Manly & Rogers, of Regent's Park.

Sidford.—St. Peter's Church, Sidford, has been completed for opening. Sidford is a hamlet between Sidbury and Sidmouth. The edifice stands in the centre of the village, on the road to Lyme Regis. On the plan, the extreme length of the church is 108 ft., the width being 56 ft. It consists of nave, 70 ft. in the clear by 22 ft. wide; and north and south lean-to aisles of similar length, and 12 ft. wide respectively. On the east end of the aisle are the vestry and organ-chamber, 18 ft. by 10 ft.; and on the corresponding side is a small bell-chamber, 8 ft. by 6 ft. The chancel is 40 ft. by 21 ft. in the clear. The aisles are divided from the nave by an arcading of five bays. The church is entered by a north and south porch, and there is a priest's door at the south-east end, by which also the bell-chamber is entered. The height of the nave to the ridge is exactly 50 ft., and that of the chancel 42 ft. The bell-turret, standing immediately over the chancel arch, rises to an altitude of 72 ft. The style of the building may be termed Florid Early English, somewhat freely treated, perhaps. Externally, the walls are of brick, relieved by bands of Bath stone, and the dressings of the windows, of the doors, the copings, &c., are all of this latter material. The treatment of the walls, or faces, is of alternate brick and stone; the arcades, the chancel arch, &c., are of deeply-moulded Bath stone, and the dressings throughout are of Bath stone also. The roof is open, and springs from bold corbels in the nave, and from sculptured ones in the chancel. Those roofs are of pitch pine, stained and varnished. The side roofs are simpler than are those of the nave and chancel, and thereby increase not a little the majesty and importance of the central avenue. The seating throughout the nave and aisles is open. The windows lighting the body of the church have coloured glass freely introduced into them. They are the make of various firms, principally Messrs. Hardman, Wailes, and O'Connor. Religious emblems are worked into each. The east window, by Clayton & Bell, of London, has been erected by Mr. Bailey, of Cotford, in memory of two deceased sons. It represents the Ascension. The reredos is mainly composed of Beer stone, but Devonshire marble is largely introduced, all the panels, columns, &c., being of several varieties of that material. Except the stained glass and the tiles, the whole of the work has been carried out by local men. Mr. Stawbridge, of Sidford, has executed the mason-work; and Mr. Selway, of Ottery St. Mary, the soft stone-work. Mr. Daniels, of Sidford, did the carpentering, and the marbles are mostly from the neighbourhood of Torquay. The sculpture and the stone-carving were done by Mr. Harry Hems, of Exeter, and his assistants. The cost of the whole building has been about 5,000*l.*, due to the liberality of the Rev. G. T. Comyns.

ROMAN CATHOLIC CHURCH BUILDING NEWS.

Newcastle-upon-Tyne. — The church of the order of Dominicans, which has been built at the Red Barnes, Newcastle, has been opened for divine service. The church is situated near the North-Eastern Railway, and the building forms a conspicuous object in the view of Newcastle, especially as seen from the south side of the river. The foundation-stone was laid by Bishop Chadwick on the 14th September, 1869. The cost is about 9,000*l.*, irrespective of the site and adjoining grounds, which were obtained for about 4,000*l.* The edifice contains 1,000 sittings, and it is noteworthy that, before the building was commenced more than one-half of the cost had been subscribed in pence by the members of the St. Andrew's congregation, nearly all of whom are of the labouring classes. Many of them also worked during their leisure hours in digging the foundations, &c. The design of the church, which is by Mr. Archibald Dunn, of the firm of Dunn & Hansom, of Newcastle, may be described as semi-Romanesque, and is an attempt to reproduce a style of Gothic architecture which is peculiar to the banks of the Rhine. There is absence of tracery, elaborate ornamentation, and moulding; but a solemn effect has been produced by massive construction and breadth of treatment. The church consists of nave, aisles, transepts, and chancel. The chapels of the Rosary and St. Joseph are in the transepts. The total interior length is 170 ft., and the width 67 ft. The nave and chancel are of the same width, 30 ft., and are separated by a lofty chancel-arch, 50 ft. in height. The light is obtained mainly from the clearstory windows, which are placed very high, and form a continuous range round the nave and chancel. The internal height of the nave is 70 ft. The lower portion of the roof is panelled; the constructive timbers are allowed to show through the darkened space up to the ridge. The roof over the chancel is divided by arched ribs into panels. The sacristies are arranged as a large ambulatory round the semicircular apse of the church. The centre portion is projected beyond the rest, and contains the cope-chest and the vesting-altar. At one end they are connected with the cloisters of the monastery, and at the other with the church. Another sacristy adjoining is set apart for the use of the choristers, and the whole, with the church and monastery, forms a thoroughly connected range of buildings. In treating the interior of the church, the use of plaster has been avoided; the architectural features are carried out in stone, and the wall-spaces are lined with a fine quality of white bricks, pointed with red joints. The effect produced is that of the decorations made use of in the thirteenth century. Only a limited amount of decoration has been introduced into the sanctuary, where the same simple treatment has been carried out, the ornamentation being stencilled on the bricks. The aisle and nave walls are lined with a dado of pitch-pine 5 ft. high. The benches are of the same material. The stalls in the chancel are of oak, with a small amount of carving. The seats of the choristers are placed in front of these. The altar is raised 10 ft. above the nave, and is isolated, and stands in the chord of the apse. Built in at the back of the altar is a flight of steps to reach the expositorium, which (as yet unfinished) will be reared against the end of the apse, and will be an elaborate piece of stone-carving, 25 ft. in height. From each end of the expositorium the reredos will encircle the whole circumference of the apse-wall, and consist of twenty-four niches, containing figures, nearly life-size, of the saints of the Dominican order. The nave and aisle floors are laid with polished York landings, with margins of red stone, and small squares of blue slates inserted. The north window of the west aisle is filled with stained glass, by Mr. Barnett, of Newcastle. The exterior of the church is of the stone of the district, built throughout in regular courses, with large mortar joints. The roofs are covered with red Broseley tiles. A massive tower, situated at the north-west corner, and detached from the main building of the church, is carried at present to a height of 50 ft. The total height will be 175 ft., and it will be gabled on four faces, and finished with the low pyramidal roof peculiar to those towers. The most notable feature of the exterior is the composition of the west-end gable, which is 80 ft. in height. Placed high is a large rose-window, filled with ten smaller circles, each supported on a shaft, with carved capitals. In the centre of the window is carved a dove,—the symbolical representation of the Holy Ghost,—descending on the heads of the twelve apostles, who are ranged in a series of niches immediately underneath. Below, the figure of our Lord, in the act of benediction, stands prominently forward in the centre; whilst the chief apostles, St. Peter and St. Paul, will occupy niches upon buttresses at each side. The general contractors have been Mr. Hudspeth, for mason's work; and Mr. Wichello, for car-

penter's work. Mr. Moody, of Durham, has fitted up the stalls and seats of the church. The painting has been done by Messrs. Henderson & Son, and the plumbing by Messrs. Russell & Davis. Schools, to accommodate 800 children, are planned on a site at the south side of the church. A house, at present standing on the east side, is to serve at present as a monastery. It is intended, however, to replace it with a suitably-designed building, connected by the cloisters with the church and schools. The buildings will then form an open quadrangle, the church and monastery forming the two sides, and the cloisters completing the remainder. The plan of the edifice (cruciform, and with transepts on each side of the nave) contemplates the addition of several chapels through arched openings on each side. Over the altar in the chapel of St. Joseph is a painting of the Immaculate Conception. It is an oil painting, by Alonzo Cano, formerly in a suppressed convent at Madrid, and the painting itself is a copy of the picture of Murillo which is in the Palais of the Louvre at Paris, and is valued at 10,000*l*. The picture in the new church of St. Dominic, at Newcastle, is valued at 2,000*l*. When the convents in Spain were closed, it became the property of the chaplain of the late King of Spain, Ferdinand VII., and it has been in the possession of his relatives until it was purchased by Mr. Pelegrin, a Spanish gentleman, who has for some time past been living in Newcastle, and by whom it has now been presented to the Church of St. Dominic. The church at present contains one organ, the choir-organ, which is placed in the gallery in the west transept. It is, however, intended to have a chapel-organ, to be placed in a gallery which will be erected for the purpose at the north end, and for which funds are being raised. The choir-organ has been built by Messrs. J. Nicholson & Son, Newcastle.

Books Received.

Lectures on Architecture. Translated from the French of E. Viollet-le-Duc by Benjamin Bucknall, Architect. Vol I., Lecture I. J. Clark, Stroud, Gloucestershire. 1873.

We are glad to find that we shall have an English version of M. Le Duc's lectures, and we offer Mr. Bucknall good wishes for the success of his undertaking. The work will consist of twenty lectures, in two volumes, largely illustrated. The first ten lectures treat of the nature and origin of art, and describe the early growth of architecture; and the last ten show the application which may be made of the ancient principles to meet modern requirements. The first lecture (printed in Paris) is very well got up, and has four page-illustrations. When the work is further advanced we shall look at it seriously.

VARIORUM.

Mr. Wyld has issued a map of the British possessions on the Gold Coast, and the territories of Ashantee and Fantee. There is reason to fear that it will be useful to have it by one presently.——Mr. Alfred Smee has printed, in a pamphlet form, his recent letters on "Milk, Typhoid Fever, and Sewage" (Collingridge, Aldersgate - street.)——The *Garden* says,—Dr. Toner, of Washington, advocates the establishment of "free pakrs and camping-grounds, or sanitariums for the sick and debilitated children of the poor of crowded cities during the summer months." "Such parks," says Dr. Toner, "should be free to all who have sick or debilitated children, and persons while there should be permitted to live in tents or cottages, and in such a style as their means and tastes justify, so long as they do not violate the laws of health or incommode their neighbours,—the main purpose of the institution being to secure by a healthy rural residence the restoration to health and the preservation of the lives of the children of the poor, suffering from, or threatened by, diseases incident to, and aggravated by, the excessive heat of summer in cities." The plan seems worthy of serious consideration, especially in America, where there are many healthy high grounds uncultivated.

New Pier at Ostend. — The Communal Council of Ostend has accepted the tender of Mr. Hendry, of London, for the construction of a new pier.

Miscellanea.

Opening of Wandsworth Bridge.—This new bridge has been formally opened for public traffic. The site on the Wandsworth side is immediately between the Old Wandsworth Pier and the Distillery, where there is a communication with York-road. On the opposite or Fulham side of the river the bridge stands between Hurlingham House and Chelsea Meadows, not far from the Imperial Gasworks, and leads out towards Walham-green. The bridge is constructed of iron, and consists in the first place of one continuous girder resting on cylinders filled with concrete, and buried deep in the river's bed. It is divided into five spans, one at each end of 113 ft. 6 in., and three in the stream of 133 ft. 4 in. each. The cylinders are of wrought iron, each 7½ ft. in diameter. Two of them form a pier. The abutment piers on either side of the river are of brickwork and masonry. The elevation of the structure affords a clear headway of 20 ft. above Trinity high-water level at the centre. The cylinders have been sunk to a depth of 14 ft. into the London clay, and have a thick bed of concrete laid under them. The main girders of the bridge are of the lattice pattern, 12 ft. deep. The bridge proper has been erected at the cost of between 14,000*l*. and 15,000*l*., but when the approaches, &c., are included the figures run up to from 35,000*l*. to 40,000*l*. The bridge has been erected from the designs of its engineer, Mr. J. H. Tolme, by Messrs. De Bergue & Co., as contractors, under the superintendence of their engineer, Mr. Mallalieu; the contractors for the approaches being Messrs. Bull & Sons, of Southampton.

Carpenters and their Pay.—On Thursday, Messrs. Jackson & Shaw, the contractors and builders of Earl-street, Westminster, were summoned to Westminster Police-court by Edward Butler, a carpenter, for not paying him at the rate of 9d. per hour for work done, he being a skilled operative.—Mr. Arnold gave judgment. He said the complainant entered the service on the 18th of August, and worked up to the next Saturday, claiming to be paid 9d. per hour, but the defendants paid him 6½d., and he sued for the difference. There was no contract, but he says, "I, as a skilled workmen, am entitled to 9d. per hour." The defendants did not dispute that skilled men were entitled to 9d., but alleged that complainant was not a skilled workmen, and only worth 6½d. per hour. The complainant relied for his case on the fact that he had duly served his time to a master in the country, and had worked for two London firms and received full pay, and he understood that unless there was a special contract he would be entitled to full money, and if he were incompetent they should at once have discharged him, and not have kept him till the end of the week, and put him to skilled labour. On the other hand, the defendant said that it was the custom in large firms to take a man without any stipulation, and at the end of the week pay him what he was entitled to; and in this instance, his work, on examination, was found to be worth 6½d. In this case the question was the value of the work, and how it was ascertained. The question was one of fact, and purely so. Had the complainant established that his work was worth the higher rate of wages? Under all the circumstances, he (Mr. Arnold), being of opinion that he had not done so, dismissed the summons.

Charge against a Sheffield Master Builder.—At the town-hall, on Wednesday, before the stipendiary magistrate, a charge of a serious character was preferred against Mr. John Helliwell, of Monmouth-street, master builder. Mr. Chambers appeared to prosecute; Mr. Clegg was present on behalf of the defendant. The information stated that the defendant had maliciously and unlawfully committed damage to certain real property, belonging to Mr. Henry Egginton, by pulling down several stoves and ten doors, in some houses erected by the defendant for him, and thereby doing injury to the extent of 20*l*. It appeared that Mr. Egginton made a written contract with the defendant to build certain houses in Mushroom-lane, for 315*l*. Of this, Mr. Egginton paid him 283*l*. on account.—Evidence was given in support of the charge, and eventually the stipendiary decided to adjourn the case for a few days, in order that the evidence might be completed; and he ordered the defendant to be bound over in 100*l*., and two bonds of 50*l*. each, to appear again to answer the charge.

How to Store Fruit.—Some of our readers will be glad to learn the instructions given by the *Gardener's Magazine* on this point:—An expensive structure is not required, for the fruit may be kept exceedingly well in a dark room in which it will not be exposed to sudden changes of temperature. A cellar is a capital place, provided it is perfectly dry and dark; but, as usually constructed, cellars are too damp and incapable of being properly ventilated. If a place is built expressly for fruit it should, in dry soils, be partly below the general level, with the soil banked up against the walls. On wet soils it may be built upon the level and a bank of soil made against the walls. The roof must be double, or covered with a good thickness of thatch, which will materially assist in maintaining an equable temperature. The fruit should be kept in perfect darkness; but, to facilitate the examination of the stores, windows provided with shutters should be fixed at intervals in the roof or elsewhere, according to the style of the house. The fruit-room should be in a shady position, for a very considerable number of soft fruits ripening in summer are materially improved by being placed in a cool room for a few days, and in some cases the season of a particular fruit may be prolonged considerably by a portion of the crop being gathered, and then placed in a cool dry place or a dry cellar. With regard to the internal fittings, it will suffice to say that shallow shelves or drawers of open lattice-work are preferable for laying the fruit upon.

Window in Westminster Abbey to George Herbert and William Cowper.—The Dean of Westminster proposes to place in the Abbey, in the chapel where is the monument to William Wordsworth, a memorial of the two poets, George Herbert and William Cowper, both educated at Westminster School. It was the intention of the Dean to include a third name, that of Charles Wesley, also an old Westminster boy, but this is now superseded by the erection of a statue, near that of Isaac Watts. The *Leisure Hour* says, before any public announcement, a circular was issued to a few friends likely to take interest in the proposal. One of these circulars having come into the hands of an American, Mr. G. W. Childs, the proprietor of the *Philadelphia Ledger*, Mr. Childs asked the privilege of bearing the whole cost of the proposed memorial. Dean Stanley responded to the generous offer in the same spirit in which it was made. It is a happy incident of international courtesy, in regard to names which are held in grateful remembrance in both countries. As an American, Francis Boott, of Boston, had the honour of placing the monument to Henry Kirke White at Cambridge, so the name of another American, George William Childs, of Philadelphia, will be associated with the Westminster memorial to Herbert and Cowper.

A New Hospital.—The business portion of the new premises of the Western General Dispensary has been opened for the treatment of patients. The new premises are situated at the corner of Marylebone-road and Stafford-street, close to the Edgware-road Station of the Metropolitan Railway. The building is in the Gothic style, Mr. Saville being the architect, and Messrs. Jackson & Shaw the contractors. There are about thirty rooms, two of which are waiting-rooms, three surgeons' rooms, and three physicians' rooms. The design of the charity, which was founded at the old premises in 1830, is to give medical and surgical aid to the sick poor, and to visit at their own homes such as are unable to attend at the dispensary, provided that they reside within one mile of the institution.

New Hoe Perfecting Machine. — The regular sale of *Lloyd's News* has reached nearly 600,000 copies every week, and Messrs. Hoe & Co. (who now carry on a very large engineering establishment in London) have invented a new machine that will print two entire copies of *Lloyd's News* on a sheet, and complete over 20,000 papers every hour. The paper is printed from a roll, each one being about 2½ ft. in breadth, and containing a length of over four miles and a half, equal to 10,000 papers. The machine occupies a space of about 20 ft. long, 6 ft. wide, and 7 ft. high. The great improvements that have been introduced into the process of stereotyping during recent years, enable the printers to cast any number of plates very rapidly, so that many machines can be started, and the editions printed in the shortest possible space of time.

The Maidstone Museum. — The public opening of the Brenchley gardens, together with the new wing of the Charles Museum, Maidstone, have taken place. The area of the garden is somewhat over five acres, and the ground has been laid out in lawns and terrace-walks by Mr. Mackenzie, landscape gardener to the Metropolitan Board of Works. At the entrance of the gardens is the head gardener's residence, while one end of the grounds is ornamented by the band-stand, and in the centre is placed some marble statuary (Acis and Galatea), the gift of Mr. H. A. Brassey, M.P. The new wing, which is red brick, on a stone foundation, consists of two halls, one considerably larger than the other. The larger hall contains Mr. Brenchley's collection of *virtu*, statuettes in bronze, terra-cotta ornaments, &c., and a marble bust of the donor. The smaller contains a valuable collection of birds from all parts of the world. These birds were obtained at great expense and trouble by Mr. Brenchley, in his lengthy wanderings over the face of the globe. This room also contains a few specimens of the smaller foreign animals, and a goodly number of butterflies, moths, &c.

New Church of St. Gabriel, Newington. The foundation-stone of the new church of St. Gabriel, Newington, has been laid by the rector, the Rev. W. D. M'Lagan. The church is built on a portion of the graveyard adjoining the parish church, which is shortly to be removed in order to widen the roadway at Newington-butts. St. Gabriel's is intended to be only a mission church, as the parish church will be replaced by a finer edifice, to be erected in Kennington Park-road. The mission church will be a plain structure in the Gothic style, and will be built almost entirely of red brick. The length from end to end is 119 ft., the nave being 76 ft. long and 25 ft. wide, and the width of the aisles 11 ft. each. The church will accommodate 600 people, and will cost 4,000*l.*, for which the rector has made himself responsible.

New Masonic Temple at Philadelphia.—A new Masonic Temple has been in course of erection for the past five years in Philadelphia. The building extends 250 ft. east and west, whilst its breadth is 150 ft. The cost of the ground was 156,793 dols. The building is now nearly completed. The total cost is 1,475,000 dols., including cost of ground, the money having been raised chiefly by a Masonic loan made under authority of an Act of the Legislature. The building is practically two stories in height, with a grand central tower 250 ft. high, and several smaller towers and turrets at prominent parts of the structure. The new temple was recently thrown open to the officers of the Knights Templar and Grand Lodges, and brilliantly illuminated.

A Substitute for Coal.—Among the anomalies of the fuel question, the most striking consists in the fact that the supply of petroleum from the Pennsylvania wells is now at a rate which has reduced its value to 1d. per gallon, and that yet no methods have been brought into general use to utilise this product, either for manufacturing or domestic purposes, so as to influence the price of coal. The present yield of the region is estimated at 30,000 barrels a day, and new discoveries are constantly made. An impression is becoming general that the existence of this fuel is as extensive as that of coal itself, and its utility is finding recognition in China and Japan, whither considerable shipments are now in progress.

Herne Bay and Canterbury.—A meeting has been held in Canterbury to promote a scheme for the formation of a railway from Canterbury to Herne Bay. It was stated that the line could be formed for 45,000*l.*, three-fourths of which a contractor had offered to take in shares, leaving only 10,000*l.* to be subscribed for by the public. A resolution was agreed to affirming that the railway in question would be of material benefit to Canterbury and Herne Bay, and pledging the meeting to use its utmost endeavours to carry out the project. The inhabitants and owners in both places should do their best to promote the undertaking.

Proposed Halls for School Board Schools. Amongst the subjects which on Wednesday came before the London School Board was a motion by Mr. Smithies, that in all schools to be erected in future there should be provided a central hall, or room sufficiently large for the assembling of all the scholars. On a division, however the previous question was carried by a considerable majority. It is said these halls would cost a quarter of a million sterling.

Welsh Workmen and the University College for Wales.—A Festiniog scholarship of 20*l.*, tenable for two years by an inhabitant of the district, and a Commercial Travellers' scholarship of the same amount, are to be competed for at the opening of the University College for Wales, at Aberystwyth, on October 8th. The Festiniog scholarship has been established by the inhabitants of the district, chiefly quarrymen, and is a remarkable illustration of the wide-spread belief in education which exists among all classes in the principality. The other scholarship is one of several which are being founded by the commercial travellers of North and South Wales.—*Cambrian News.*

Discovery at St. Margaret's Church, Lynn.—An interesting discovery has been made in clearing out the last few inches of earth from the nave, to lower it about 5 ft. A mass of stone was struck upon, and it proved to be a large part of the Early English spire, which, in the eighteenth century, fell from the south-west tower, demolishing great part of the nave; which led to its being wholly pulled down and rebuilt in its present debased style. The stone is lying where it fell,—towards the north-east, and it includes a large quantity of carved mouldings, gargoyles, and pinnacle work, from which a restoration of the tower and spire might easily be made. The "banqueting-hall" plaster-work ceiling of the nave has been pulled down.

Godalming.—There is no doubt that the erection of the Charterhouse schools has already been the cause of considerable good to the town and trade of Godalming, and there can also be no doubt that in the future it will have a very wide effect upon the vicinity. It is supposed that in the course, say of a quarter of a century, quite a little city of villas will have sprung up in the neighbourhood of the schools. This view seems to be a highly feasible one, for at the present moment, within 300 hundred yards of the schools four buildings are in progress which give employment to about 500 workmen; the respective contractors being Messrs. Bull & Son, Southampton; Mr. Harris, Woking; Mr. Putney, Dorking; and Mr. King, London.

Extension of the District Railway.—The operations under the "Hammersmith Extension Railway Act, 1873," if not actually begun, are about to begin with as little delay as possible. Messrs. Barlow, Wollaston, Pym, and Vignolles, are the originators and proprietors of the new undertaking, which is the construction of a line of railway 1 mile 7 chains and 10 links in length, commencing by a junction with the District Railway at West Brompton, in the parish of St. Mary Abbott, Kensington, and terminating at the Broadway, Hammersmith. The capital of the new company is fixed at 244,444*l.*, to be issued as stock, and the same, when issued and subscribed for, is to be paid up in full.

Opening of a Working Men's Club at Carlton.—A club of this description has been opened at Carlton, near Nottingham, by the Earl of Carnarvon, who, in his address, commented upon the advantages which the building afforded, stating that it contained a lecture-hall and rooms for reading, writing, refreshments, and smoking. There were some people who viewed the amusements provided with distrust, but he did not. He heartily concurred in them. Having descanted on the importance of sobriety, his lordship went on to say that he valued these clubs because they brought about a kindly and friendly co-operation of different classes with each other.

Association of Municipal and Sanitary Engineers and Surveyors.—A meeting of the district committee for the Midlands will be held at the town-hall, Leamington, on the 18th of October, when it is proposed to make an inspection of the sewage works and Sewage Irrigation at Leamington; after which to drive over to Warwick and inspect the sewage works and farm belonging to that town, returning to the town-hall, when, if time will permit, short papers may be read by members; selecting for such paper any of the "examples of subjects" suggested by the president in July of this year.

Death of Mr. Robert Edgar, Architect.—On the eve of going to press, we regret to have to announce the sudden and unexpected death of Mr. Robert Edgar, of the London School Board, from apoplexy.

Opening of Elswick-park, Newcastle-upon-Tyne.—This new west-end park for Newcastle has been opened. It is proposed, also, to have a park for the east-end. Newcastle is singularly deficient in open spaces and recreation-grounds. A charge of one penny for admittance is made at present; monthly tickets for 2s., or family tickets for 10s.

TENDERS

For rebuilding premises No. 43, Bow-lane, E.C., for Mr. William Vivian. Mr. Chamberlain, architect. Quantities by Mr. S. B. Wilson:—

Myers & Sons	£2,307 0 0
Hawtrey & Sons	2,096 0 0
Brass	2,035 0 0
Gammon & Sons	2,010 0 0
Fish	1,972 0 0
Morter	1,887 0 0
Hill & Sons	1,819 0 0
Patrick & Son (accepted)	1,639 0 0

For building four houses, with shops, in Sandy's-row, Spitalfields, for the Jews' Free Schools. Mr. Chamberlain, architect. Quantities by Mr. S. B. Wilson:—

Myers & Sons	£2,993 0 0
Patrick & Sons	2,686 0 0
Fish	2,657 0 0
Ashby & Sons	2,639 0 0
Morter	2,629 0 0
Brass	2,613 0 0
Kiddle & Son	2,601 0 0
Pritchard (accepted)	2,558 0 0

For shops and offices in Queen-street, E.C. for Messrs. M. & S. Hyam. Mr. Chamberlain, architect. Quantities by S. B. Wilson:—

Myers & Sons	£10,995 0 0
Patrick & Son	10,374 0 0
Holland & Hannen	10,105 0 0
Lucas, Brothers	10,080 0 0
Hill & Sons	9,949 0 0
Fish	9,800 0 0
Trollope & Sons	9,723 0 0
Pritchard	9,479 0 0
Morter	9,123 0 0
Brass	9,086 0 0

For rebuilding No. 35, Great Russell-street, for Mr. Cutter. Mr. Finch Hill, architect. Quantities by Mr. S. B. Wilson:—

Myers & Sons	£3,187 0 0
Newman & Mann	3,075 0 0
Pritchard	2,736 0 0
Howard	2,694 0 0
Williams & Son	2,682 0 0
Killby	2,656 0 0
Morter	2,636 0 0
Patrick & Son	2,496 0 0

For rebuilding the Duke of Clarence, St. Pancras, for City of London Brewery Co.:—

Pain	£2,565 0 0
Outhwaite & Son	2,362 0 0
Carter	2,270 0 0
Taylor	2,227 0 0
Fox	1,989 0 0
Lascelles	1,897 0 0
Thompson (accepted)	1,840 0 0

For cottage, Rush-green-road, Romford, Essex, for Mr. A. Elves. Messrs. T. & W. Stone, architects:—

Langmead	£420 0 0
Orpin	390 0 0
Christopher, Brothers	374 0 0
Hinds (accepted)	349 0 0

For Newent sewerage. Mr. Curley, engineer. Quantities supplied:—

Welsh	£2,746 0 0!
Mackay	2,438 0 0
Peters	2,298 0 0
King & Godwin	2,294 0 0
King	2,100 0 0
Spring	1,942 0 0
Griffiths	1,845 0 0
Meredith & Lee (accepted)	1,587 0 0!

For schools for Wymondham School Board, Norfolk. Mr. John B. Pearce, architect:—

Spooner-row Schools.

Ketringham	£1,349 0 0
Clarke	1,271 18 0
Withers	1,184 0 0
Colman & Woodbine (accepted)	1,063 10 0
Nelson	1,028 19 0

Bilfield Schools.

Clarke	£471 13 0
Withers	472 10 0
Colman & Woodbine (accepted)	426 5 0
Nelson	375 10 0

For a pair of labourer's cottages on the Stoke Hill Estate, Guildford. Mr. Henry Peak, architect:—

Pearce & Clark	£[illegible] 0 0
Loe	269 0 0
Mason (accepted)	260 0 0

For two cottages on the Down-place estate, Guildford. Mr. Henry Peak, architect:—

Nye	£506 0 0
Goddard & Son	482 0 0
Mason	368 0 0
Strudwick (accepted)	362 15 0

For additions to the Duchess of York, Walworth, for Messrs. Truman, Hanbury, & Buxton. Mr. W. E. Williams, architect:—

Anley	£445 0 0
Marr (accepted)	442 0 0

For alterations at the City of London, City-road. Mr. W. E. Williams, architect:—

Ennor	£510 0 0
Beeton	497 0 0
Anley	470 0 0
Marr (accepted)	444 0 0